

# The United States MILLER

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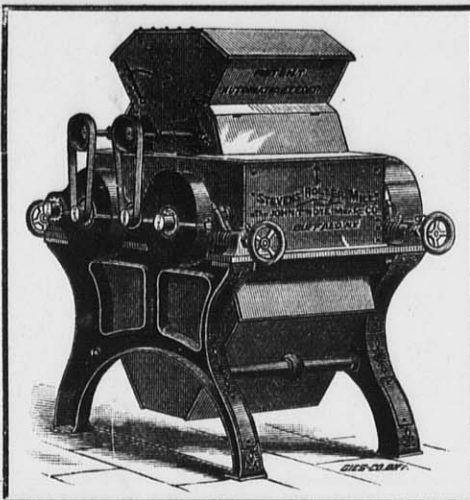
MILWAUKEE, JUNE, 1884.

{ Terms: \$1.00 a Year in Advance.  
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## OUR SEMI-CENTENNIAL OF FLOUR MILL BUILDING.

Parties contemplating the erection of new Mills, or improving and increasing the capacity of old ones, will serve their best interests by corresponding with and submitting their ideas to us.

Single and Double Roller Mills,  
Concentrated Roller Mills,  
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—ALL WITH THE—  
**STEVENS CORRUGATION.**

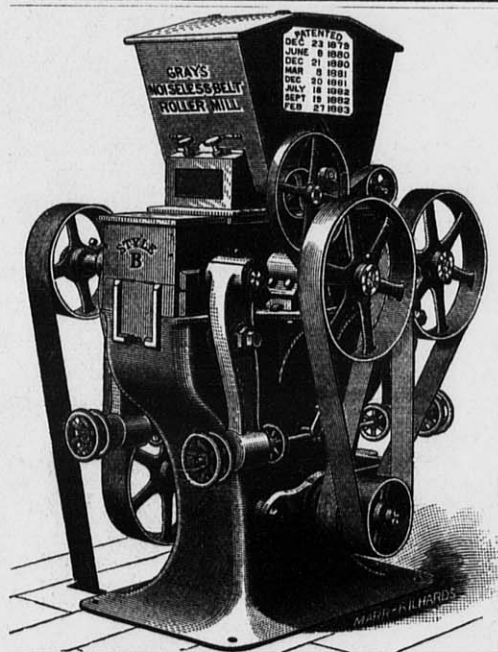


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Positiveness of Action,  
Ease of Management,  
Less Liability to Get Out of Order,  
Less Power Required,  
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**THE STEVENS ROLLS** are the most widely known and universally used of any roll in the world. Send for illustrated catalogue and price list.

Beware of Second-hand Stevens Roller Mills offered by one of our competitors. They were made in 1881 and have since passed through a fire.

THE JOHN T. NOYE MANUFACTURING CO., BUFFALO, N. Y.



## GRAY'S NOISELESS BELT ROLLER MILLS.

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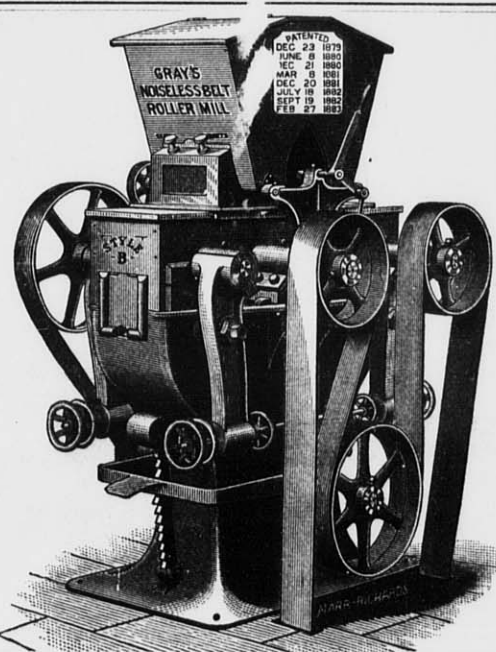
FOR SMALL MILLS.

Send for Circulars and Prices.

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Reliance Works, Milwaukee, Wis.



## ODELL'S ROLLER MILL SYSTEM.

Is now in successful operation in a large number of mills, both large and small, on hard and soft wheat, and is meeting with Unparalleled Success. All the mills now running on this system are doing very fine and close work, and we are in receipt of the most flattering letters from millers. References and letters of introduction to parties using the Odell Rolls and System, will be furnished on application to all who desire to investigate.

## ODELL'S ROLLER MILL,

Invented and Patented by **U. H. ODELL**, the builder of several of the largest and best Gradual Reduction Flour Mills in the country.

## AN ESTABLISHED SUCCESS

WE INVITE PARTICULAR ATTENTION TO THE FOLLOWING

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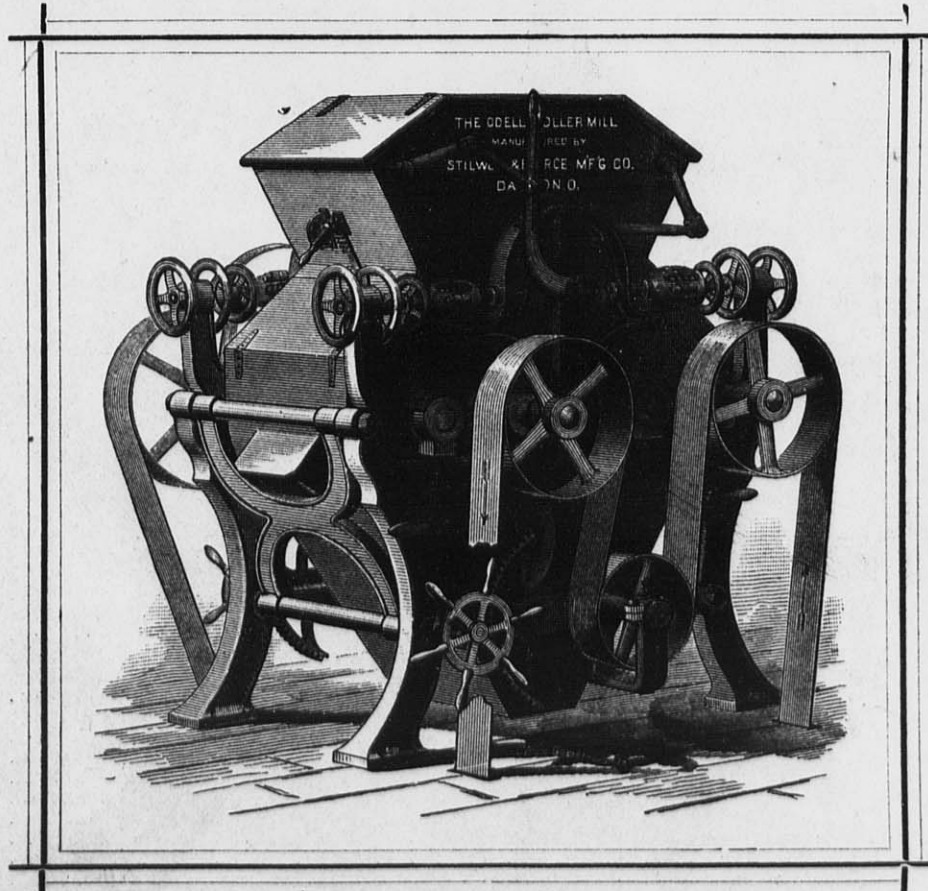
possessed by the Odell Roller Mill over all competitors, all of which are broadly covered by patents, and cannot be used on any other machine.

1. It is driven entirely with belts, which are so arranged as to be equivalent to giving each of the four rolls a separate driving-belt from the power shaft, thus obtaining a *positive differential motion* which cannot be had with short belts.
2. It is the only Roller Mill in market which *can instantly be stopped without throwing off the driving-belt*, or that has adequate tightener devices for taking up the stretch of the driving-belts.
3. It is the only Roller Mill in which *one movement of a hand-lever spreads the rolls apart and shuts off the feed at the same time*. The reverse movement of this lever brings the rolls back again exactly into working position and *at the same time turns on the feed*.
4. It is the only Roller Mill in which the movable roll-bearings may be adjusted to and from the stationary roll-bearings *without disturbing the tension-spring*.
5. Our Corrugation is a decided advance over all others. It produces a more even granulation, *more middlings of uniform shape and size, and cleans the bran better*.

**We use none but the BEST ANSONIA ROLLS.**

OUR CORRUGATION DIFFERS FROM ALL OTHERS, AND PRODUCES

**LESS BREAK FLOUR and MIDDINGS of BETTER QUALITY.**



Mill owners adopting our Roller Mills will have the benefit of Mr. Odell's advice, and long experience in arranging mills. Can furnish machines on Short Notice. For further information, apply in person or by letter to the sole manufacturers,

**STILWELL & BIERCE MANUFACTURING CO.,**

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[Please mention this paper when you write to us.]

DAYTON, OHIO, U. S. A.



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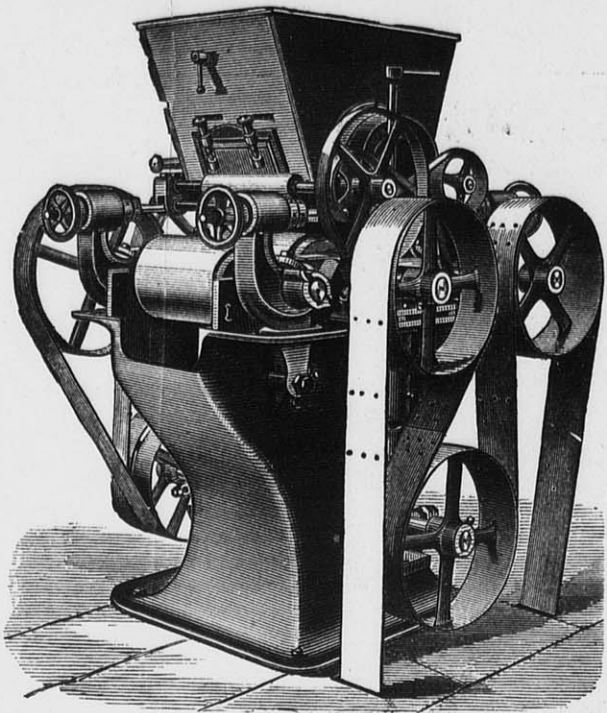
**RELIANCE WORKS,**

**EDW. P. ALLIS & CO., Proprietors.**

**MILWAUKEE, WIS., U. S. A.**

**SOLE MANUFACTURERS OF**

**GRAY'S PATENT**



**Noiseless Belt Roller Mills**

**WITH**

**Wegmann's Patent Porcelain Rolls.**

**Unexcelled for reducing Middlings to Flour.**

**Far ahead of Smooth Iron or Scratch Rolls and entirely superseding the use of Mill Stones for this purpose.**

**Read the Following Letters.**

Terre Haute, Ind., Aug. 22nd, 1882.

MESSRS. E. P. ALLIS & Co., Milwaukee, Wis.

Gentlemen:—We are very much pleased with the whole eight set of Porcelain Rolls you put in our Mill. The two double sets sent us soon after starting up our mill last fall, we put in place of two run of stones for grinding our coarse Middlings.

We find the Flour from the Porcelain Rolls much more evenly granulated and much sharper and cleaner than that we got from the stones, besides the second or fine Middlings are much better, being almost entirely free from germs and not as specky.

Yours Truly,

KIDDER BROS.

Kings County Flour Mills, Brooklyn, N. Y., Aug. 15, 1882.

MESSRS. E. P. ALLIS & Co.

Gentlemen:—You ask how I like the Porcelain Rolls as compared with Mill Stones. I have been using the original Porcelain Gear Machines for five years and became convinced a long time ago that Mill Stones could not produce as satisfactory results.

I am now operating your Improved Machine of increased size with nice adjustments, working without noise with Gray's Patent Belt Drive. The Flour it produces is beautifully grainy and strong, and its capacity two or three times more than the old Gear Machine.

It runs splendidly, gives no trouble, consumes less power than Mill Stones, dispenses with costly stone dressing and for reducing middlings and soft branny residuums and tailings is unequaled by any Machine, iron or stone, at least this is my opinion after five years of practical experience.

Yours truly,

JOHN HARVEY,

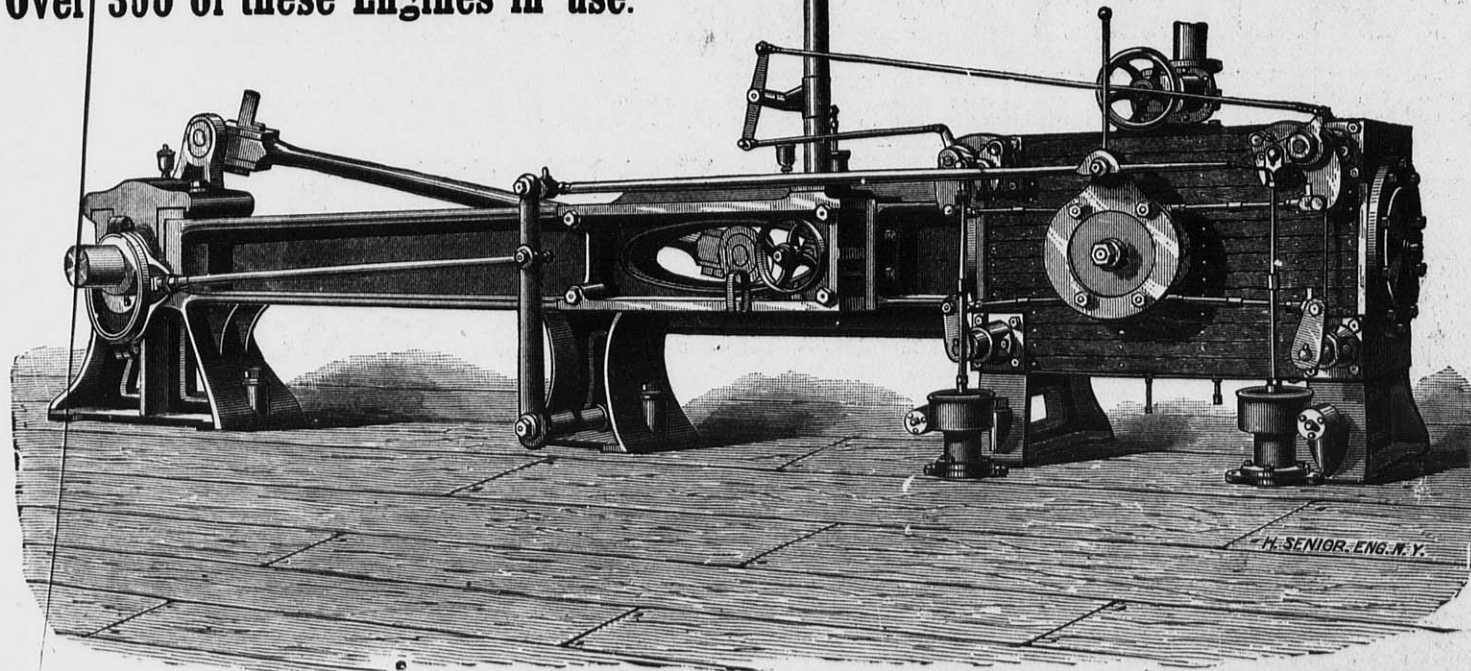
Head Miller Kings Co. Mills, Brooklyn, N. Y.

**ALSO SOLE MANUFACTURERS OF THE CELEBRATED**

**REYNOLDS'**

**CORLISS ENGINE.**

**Over 300 of these Engines in use.**



**These Engines are especially adapted for use in Flouring Mills—being unsurpassed in Simplicity, Durability and ECONOMY OF FUEL, and far ahead of any other**

**Automatic Cut-off Engines.**

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**Edw. P. Allis & Co.,**

**MILWAUKEE, WIS.**

**The following is a partial list of Flouring Mill owners who are using the Reynolds' Corliss Engines.**

J. B. A. Kern.....	Milwaukee, Wis.	Albert Wehausen.....	Two Rivers, Wis.	L. H. Lanier & Son ..	Nashville, Tenn.
LaGrange Mill Co.....	Red Wing, Minn.	Green & Gold.....	Faribault, Minn.	Wells & Nieman.....	Schuyler, Neb.
New Era Mills.....	Milwaukee, Wis.	Meriden Mill Co.....	Meriden, Minn.	Grundy Centre Milling Co.....	Grundy Centre, Iowa.
Daisy Flour Mills.....	Milwaukee, Wis.	Townshend & Proctor.....	Stillwater, Minn.	B. D. Sprague.....	Rushford, Minn.
Winona Mill Co.....	Winona, Minn.	Sooy & Brinkman.....	Great Bend, Kansas.	The Eisenmeyer Co.....	Little Rock, Ark.
W. D. Washburn & Co.....	Anoka, Minn.	Frank Clark.....	Hamilton, Mo.	A. W. Ogilvie & Co.....	Montreal, Canada.
Archibald, Schurmeier & Smith.....	St. Paul, Minn.	N. J. Sisson.....	Mankato, Minn.	Geo. Urban & Son.....	Buffalo, N. Y.
White, Listman & Co.....	La Crosse, Wis.	Jas. Campbell.....	Mannannah, Minn.	A. A. Taylor.....	Toledo, O.
Milwaukee Milling Co.....	Milwaukee, Wis.	C. J. Coggin.....	Wauconda, Ill.	Pindell Bros. Co.....	Hannibal, Mo.
Stuart & Douglas.....	Chicago, Ill.	J. J. Wilson.....	Algona, Iowa.	Kehler Milling Co.....	East St. Louis, Ill.
Stillwater Milling Co.....	Stillwater, Minn.	Ames & Hurlbut.....	Hutchinson, Minn.	Walsh, DeRoo & Co.....	Holland, Mich.
Otto Troost.....	Winona, Minn.	Lincoln Bros.....	Olivia, Minn.	Goodlander Mill and Elevator Co.....	Fort Scott, Kan.
E. T. Archibald & Co.....	Dundas, Minn.	Northey Bros.....	Columbus Junction, Iowa.	W. Seyk & Co.....	Kewaunee, Wis.
C. McCreary & Co.....	Sacramento, Cal.	Bryant Mill Co.....	Bryant, Iowa.	Topeka Mill and Elevator Co.....	Topeka, Kan.
Gardner & Mairs.....	Hastings, Minn.	David Kepford.....	Grundy Centre, Iowa.	Strong Bros.....	Graceville, Minn.
J. Schuette & Bro.....	Manitowoc, Wis.	Waterbury & Wagner.....	Janesville, Minn.	C. A. Roberts.....	Fargo, D. T.
Minnetonka Mill Co.....	Minnetonka, Minn.	W. A. Weatherhead.....	South Lyons, Mich.	Coman & Morrison.....	Fox Lake, Wis.
J. D. Green & Co.....	Faribault, Minn.	Geo. Bierline.....	Waconia, Minn.	J. G. Schaapp.....	Grand Island, Mich.
F. Goodnow & Co.....	Salina, Kansas	James McCafferty.....	Burton, Mo.	Fred. Schumacher.....	Akron, Ohio.
A. L. Hill.....	Faribault, Minn.	Geo. P. Kehr.....	Menomonee Falls, Wis.	Warren Mfg Co.....	Warren, Minn.
Beynon & Maes.....	Owatonna, Minn.	Winona Mill Co. compounding their present 24x60 Winona M.			
Eagle Mill Co.....	New Ulm, Minn.	Forest Mill Co.....	Forest, Minn.		



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## GRINDING.

BY T. D. CURTIS.

"The mills of the gods grind slowly,  
But they grind exceeding small;"  
They are run by infernal engines,  
And they grind up souls and all;  
The gods are there in their glory,  
The wicked are there in their lust,  
And into the hoppers are tumbled  
And ground to invisible dust.  
And this is the "outer darkness"  
To which the selfish go;  
And here is enforced the judgment  
That endeth all their woe;  
Returning to elements senseless,  
And powerless for further abuse,  
They are moulded by powers supernal  
And made into vessels of use.  
Then know ye the powers of heaven  
Reign over the powers of hell,  
And make even fiends and devils  
Fulfill their purposes well;  
That while the righteous go upward,  
To dwell in immortal youth,  
The wicked, when ground into soul-dust,  
Make fertile the Gardens of Truth.

## THE WORKS OF THE JOHN T. NOYE MFG CO., BUFFALO, N. Y.

The John T. Noye Mfg Co. is known wherever grain is ground or bread eaten. This corporation is the result of the business established by John T. Noye many years ago, which has grown from a very modest beginning to enormous proportions. Mr. Noye died April 6, 1881, and the firm was incorporated under the above name about a year later, and R. K. Noye is the president of the Company.

We take pleasure in presenting herewith an illustration and description of the new works now occupied by the Company. We quote the description from our esteemed Buffalo contemporary, the *Milling World*, and dare say it is very correct:

"In the fall of 1882, the firm purchased a large tract of ground in the block bounded by Lake View Avenue, Jersey, Fourth and Pennsylvania streets, and embracing about four acres of land. At the Jersey street end were the shops of the Francis Axe Company, and the Company at once took possession of this building, using it as a roller shop. They then proceeded to fill in and level off the property, so as to make it a fit site for the extensive buildings which they proposed to erect upon it, and in due season commenced to build. The view given is of the side of the works fronting on Fourth street, and looking towards the lake. The slope towards the lake from the shops is continuous, so that there will be a fine and uninterrupted view at all times; the cool lake breezes will add to the comfort of the workmen in summer, while in the winter the buildings will be thoroughly heated by steam. Another advantage of the location is that it is but a short distance from the Erie canal, and the Noye Company own a strip of land running down from the shops to the canal, so that the facilities for shipping or receiving by that route are very good.

The shops are none of them high, comparatively speaking. The firm believe in gaining floor space by extending the dimensions of the building, rather than by piling story upon story, particularly where much heavy machinery is used, as in this case. By far the larger portion of the work will be done on the ground floor, on which, indeed, all the heavy machinery is located.

The entrance to the works is at the corner of Lake View Avenue and Jersey Street, (upper left-hand corner of the engraving). This is the building formerly owned by the Francis Axe Company, and is the only part

of the works which is not entirely new. It is now employed for the general machine shop; at the left hand a set of three rooms serve as offices for the works. The machine shop is a long building, 281½x42, and is full of the very best machinery for general work. It is built of brick with a truss roof, and is twenty feet high in the clear. For about eighty feet of its length a second story is finished off, which is used solely for storage purposes. A handsome engine room, 32x32, contains a fine 75-horse-power engine. This furnishes power for the general machine shop and the blacksmith shop only.

To the right of the engine room is the foundry, a brick building, 120x60, and twenty feet high in the clear. Especial pains have been taken to secure free ventilation in this building, and the desired end has been accomplished. At the side of the foundry, and running its entire length, is an additional department, twenty feet wide, containing one cupola, with room for another, core room, flask shop and brass foundry. At the end of the foundry is another annex, 21x96½, occupied by the cleaning room and sand room. The foundry runs parallel with Fourth street, and is a continuation of the main building of the works.

This main building is a fine brick structure, 400x50, and two stories high. It is parallel with Fourth street, and runs through to Penn-

sylvania street. It is divided by a brick wall into two departments, the first the roller shop, 208 feet long; the second, the wood shop, 192 feet long. On the lower story of the roller shop, fourteen feet high, are located the roll-grinding and corrugating machines, pulley lathes, gear planers and so on, including every variety of machine that could be needed. On the upper floor, thirteen feet high, are none but light machines. In one corner of the upper floor of the roller shop, a space of about 36x16 is set apart for a tin shop. In the wood shop the same general rule is followed—heavy machinery below, light up stairs.

The boiler room is located at the junction of the two last-named departments, and can be entered from either. It is 26x65 feet, and contains two large boilers, which, besides supplying steam for the engine, also furnish steam for heating the entire establishment. The fine 100-horse-power Cummer engine located here, supplies power to both roller and wood shops, and also to the foundry and the pattern shop.

The wood shop contains one very large elevator for lifting lumber and other heavy and bulky materials. In the roller shop are two elevators, one near the center, and one at one end. Adjoining the foundry, and parallel with it, is a spacious blacksmith shop, 97x35 feet, sixteen feet high in the clear. It contains several forges, two large power

hammers, and other necessary appliances. The pattern shop, 132x42, is divided into two departments; one, two stories high and forty-three feet long, for making patterns; the other, three stories high and eighty-nine feet long, for storing them. The former portion is eighteen feet in the clear; the other stories are 8 and 8 and a half feet high, respectively; this gives a good deal of room for storing patterns but it is needed, for the company has a very large line of patterns for flour mill machinery. There is an elevator in this shop also. Power is conveyed to the pattern shop from the Cummer engine by means of an underground shaft. A barn, 135x25, is erected on one corner of the lot.

Every precaution has been taken to make the shops light, well ventilated, convenient and complete. The aim has been to make the establishment a model one in every respect. There is no crowding; in fact, we are told that the capacity of the works might be considerably increased without enlarging the buildings. Nothing has been left undone that could contribute to the comfort of the workmen, or the perfection of the work. It is needless to say that the machinery turned out in the future, will not fall short of the high reputation established by an honorable career of half a century. In the occupation of these new shops the Noye Company does not remove its

it has had a tangible effect on the grain markets of the West, if not of the world. There is no reason to suppose that these reports contain more than a grain of truth, and there are many reasons for supposing that they possess no truth whatever. It is inconceivable that a land which is swept and devastated by periodical famines should become the granary of the world. But a few years ago uncounted millions of the people of India died of starvation, and the relief which was sent to the survivors almost exhausted the charities of civilized mankind for an entire year. The farmers of Illinois, Wisconsin, Iowa, Minnesota and Dakota, and of the far Saskatchewan valley, may smile in derision at the efforts of the half-naked and ill-fed natives of India, in the best of times to become serious rivals in producing the staple crop which requires intelligence, industry and capital for its successful cultivation. That a low-caste and yellow native of India can compete with a Western farmer in the production of wheat is impossible.

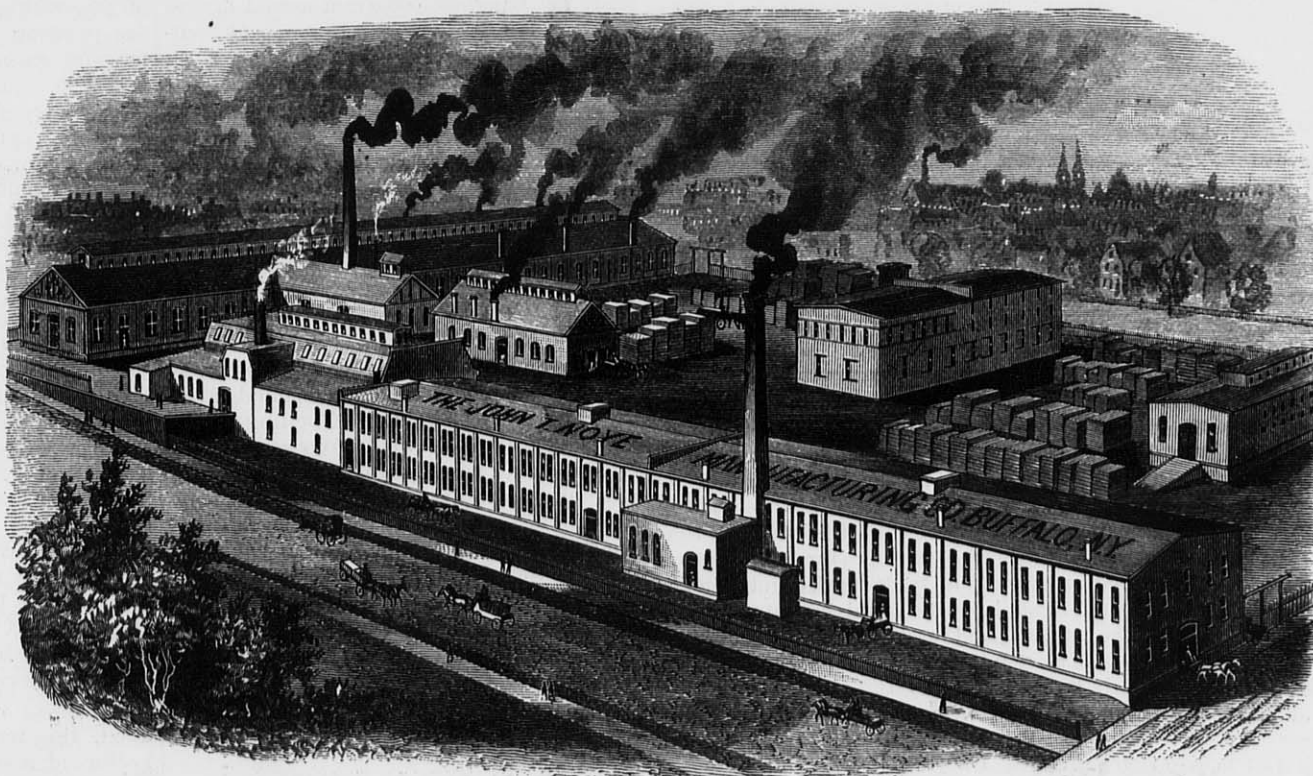
A few million bushels of wheat have been produced within a year or two in India; the amount is much greater than ever before raised on that part of the earth's surface for export. During our late civil war, also, cotton was raised in considerable quantities in India and Egypt, and flattering reports were published assuring the manufacturing world that America, as a cotton-producing country, was already "played out," and that the East would furnish all the cotton which the human race might require. Nobody now talks of the cotton of Egypt or India.

It is possible that speculators and contractors may build railroads from the East India seaports through the jungles to the plateaus where wheat might be cultivated with some success by an industrious and enterprising race of men. But it may be safely said that they will never carry wheat enough to the seaports to pay for their construction. The nomadic hordes who occupy the elevated plains of Upper India will never become wheat growers so long as they have mare's milk to drink and kid's flesh to eat. That the broad and fertile plains of India, already more thickly populated

than any part of the world, except Belgium and China, should produce wheat for exportation to Europe is not in the nature of things.

There has been hardly enough, or no more than enough, food raised in India during the last 3,000 years to feed the people, to say nothing of raising enough to feed Europe. The productive capacity of the country has reached its limit and cannot be increased.

There is no instance in history where the coolie race have become producers of anything for the general use of mankind, except tea and some few articles of luxury. They are lazy and improvident, and do not accumulate property, and do not possess in their minds any of the incentives which make the European races great growers and shippers of the articles of commerce and industry. Cotton raised by negro labor is not an exception to this statement of fact, for while it is cultivated by the manual labor of negroes, the thrift, energy and sagacity of white men control the labor by which it is produced. It is possible that, in some distant future, great wheat plantations, owned and managed by European white men, may exist in India, and may help to supply the world's markets. But there is no immediate prospect of anything of the kind.—*Journal (Chicago).*



NEW WORKS OF THE JOHN T. NOYE MFG. CO., BUFFALO, N. Y.

## WHEAT FROM FAMINE LAND.

A perceptible degree of alarm has been recently created in some commercial and in some agricultural circles by the reports that India is to produce at a low price, a sufficient abundance of wheat to supply the demand in Europe, and to destroy the European market for American wheat, except at a price which would be ruinous to the American wheat producer. These reports are to the effect that the inhabitants of India, who live on a pint of rice a day to each man, are to engage largely in wheat production, that they will export the entire crop raised, and that systems of railroads gridironing the Indian peninsulas will transport this wheat to the India seaports, whence it can be shipped to Europe and sold in Liverpool for less than American wheat is worth in Dakota. The proposition is so startling that it has attracted universal attention, and for some weeks



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E. HARRISON CAWKER, EDITOR.

PUBLISHED MONTHLY.

OFFICE, NOS. 116 &amp; 118 GRAND AVENUE, MILWAUKEE.

SUBSCRIPTION PRICE—PER YEAR, IN ADVANCE.

To American subscribers, postage prepaid.....\$1.00

To Canadian subscribers, postage prepaid.....1.00

Foreign subscriptions.....1.50

All Drafts and Post-Office Money Orders must be

made payable to E. Harrison Cawker.

Bills for advertising will be sent monthly, unless

otherwise agreed upon.

For estimates for advertising, address the UNITED

STATES MILLER.

[Entered at the Post Office at Milwaukee, Wis., as

second-class matter.]

MILWAUKEE, JUNE, 1884.

We respectfully request our readers when they write to persons or firms advertising in this paper, to mention that their advertisement was seen in the UNITED STATES MILLER. You will thereby oblige not only this paper, but the advertisers.

MILWAUKEE mills are now turning out about 16,000 barrels of flour per week. The stock of wheat in store here is 1,014,000 bushels.

FLOUR has been carried from Minneapolis and St. Paul to Milwaukee and Chicago at very low rates (private terms) during the past month, owing to railway competition to lake ports.

THE annual meeting of the Millers' National Association which was to have convened at Chicago in June, is by order of the President and Sub-Executive Committee postponed to December next.

THE Canadian Department of Marine has ordered the purchase of a Newfoundland whaler, with which to explore Hudson's bay, and establish the practicability of a steamship line to Europe for Northwestern grain.

ABOUT three-quarters of the Minneapolis mills are running, but none to full capacity. During May about 100,000 barrels per week were turned out. The amount of wheat in store at St. Paul and Minneapolis May 28, was 2,671,700 bushels, and at Duluth 1,670,000.

S. C. DALRYMPLE, the great Dakota farmer, finished sowing 58,000 acres of wheat May 7. Last year he was not through until May 28, three weeks later. He reports the ground in better condition now than ever before, and that he has used a cleaner and better quality of seed.

THERE is a home milling demand for all the good wheat left in the United States. The amount of wheat in sight May 24, 1884, in the United States and Canada, was 17,978,563 bushels. The crop prospects are good and estimates of 500,000,000 bushels of wheat for 1884 are considered near the mark.

AN English naturalist asserts that the hedge-hog cannot be poisoned, neither strychnine, arsenic or prussic acid, having any effect upon it. It eats adders, regardless of their venomous fangs. If this is true why would not extract of hedge-hog be a good antidote for poison. If any of our readers try it and survive, please let us know all about it.

THE defeat of the Morrison bill has not altogether put a stop to Congressional tinkering of the tariff, but it is generally believed that no tariff bill will reach a vote during the present Congress. The welfare of the country demands that the tariff should be let alone, for a considerable time, at least.

THE exports of breadstuffs during April, as will be seen from the published statistics, amounted to \$12,257,185, against \$12,465,979 for the same period in 1883. The increase is in both flour and wheat, 4,675,410 bushels of the latter in April, 1883, against 9,221,635 bushels, and 698,827 barrels of wheat flour, against 728,362 barrels for the month ending April.

AGRICULTURAL writers are now amusing themselves by telling their readers how much manure a ton of bran will make. The latest writer says it will produce \$14.50 worth. This is at the rate of three-fourths of a cent a pound for the bran. Pretty good material for manure this, and the only one we ever heard of that would give such results. We know of some mills however, which might turn out this kind of bran. They are not called flour mills now-a-days, however. They are now known as corn cob mills.—*The Millers' Review*.

THE MILWAUKEE INDUSTRIAL EXPOSITION will open September 13th and close October 18th. Manager Mercein has just completed the rules and regulations, copies of which can be had by application by parties desiring to make exhibits. It is intended to

make this the largest and most complete exhibition ever held in the Northwest. We hope manufacturers of flour milling machinery will be fully represented. Full information can be obtained by addressing Manager Mercein, Milwaukee Exposition Building, Milwaukee, Wis.

DURING the past month we have been favored with calls from the following gentlemen, well known to the trade: W. D. Gray, M. E., Milwaukee, Wis.; W. J. Stemler, Faribault, Minn.; Fred. Cranson, Silver Creek, N. Y.; S. H. Seamans, Milwaukee, Wis.; J. C. Heuler, Brooklyn, N. Y.; U. Legler, Elmore, Wis.; F. Klopfeisch, Milwaukee, Wis.; William Trudgeon, of the Richmond Manufacturing Co., of Lockport, N. Y.; W. Thayer, of the Thayer Mill Furnishing Co., Westerville, O.

It has been estimated that the annual loss by fires in the United States is about \$100,000,000. This is twice as much per inhabitant as the loss in Great Britain, four times as much as that of France, and six times as much as that of Germany. It is nearly as much as the amount collected on internal revenue. It is estimated that \$3 per annum is collected per head in the United States on account of careless or premeditated destruction of property by fire, and the means used to prevent the same, in the country.

THE *Allgemeine-Mueller Zeitung* says, in a recent number, that the use of hops has been found to be a most effective means for expelling worms from grain, as the worms will leave immediately after the hops are added. It has been observed that the strong odor is so disagreeable to this insect that a comparatively small quantity (even of a poor and common variety), when mixed with the grain will immediately cause the worm to leave. It is to be observed, however, that the grain bins should be perfectly ventilated and kept clean. This remedy is not in the least injurious to grain itself. The grain may be ground to flour without being at first obliged to remove the small particles of hops.

MR. W. THAYER, of the THAYER MFG. AND MILL FURNISHING CO., of Westerville, O., called on us May 26. He reports the business of the Company to be good, especially in the Central and Eastern States. Mr. Thayer is now making a tour of the Northwest, in the interest of the Company. The Thayer Common Sense Three-Reel Bolt and the Thayer Pneumatic Middlings Purifier have been already introduced into a great many mills, and we are informed give good satisfaction. Our readers will do well to write to the Company and get their 1884 catalogue. See advertisement on another page.

THE treaty in relation to patent rights is now before the U. S. Senate for consideration. The treaty was agreed upon at a conference held in Paris in March of last year, and attended by representatives of all the leading nations of the world, except the German Empire. Its object is to secure for the inventors and proprietors of trade-marks and patents equal rights in all the countries entering into the compact, and it guarantees to the citizens of each country the same advantages and privileges enjoyed by the citizens of all the other contracting nations; the same protection and the same legal remedies for wrongs are afforded.

THE Sibley College of Mechanical Engineering at Ithica, N. Y., has just received another gift from Hon. Hiram Sibley, of Rochester, N. Y., of \$35,000. The money is to be expended for adding draughting-rooms, machine-shops, mechanical laboratory, machines and apparatus. Mr. Sibley has also given \$8,000 to duplicate the set of models in machine construction executed under the orders of the German Government at Berlin, and has announced his intention of adding \$50,000 to the endowment of the Department of Mechanic Arts, thus making his total gifts considerably over \$150,000. This college possesses the best facilities for giving young men an excellent course of mechanical training in connection with their other studies. Its object is to fit the American youth for a useful life. We have too many professional men and too few mechanics.

A DELEGATION of seventeen prominent Dakota citizens have just visited Milwaukee for the purpose of conferring with Milwaukee & St. Paul Railroad officials. They claim that all elevator privileges on the Chicago, Milwaukee and St. Paul Railway in Dakota are controlled by one company and all on the Chicago & Northwestern by another company. In their interview with the Chicago, Milwaukee & St. Paul officials, the delegation obtained a concession allowing any farmers to build and operate flat warehouses and elevators at any point where they claim that full justice is not done them either in the matter of stor-

ing and handling or of grading wheat. The delegation express themselves as perfectly satisfied with the result of their visit here, and have continued their journey to Chicago, to visit the officers of the Chicago and Northwestern Railway.

## A MILWAUKEE MARINE ELEVATOR.

In these times of close competition in the milling trade, every improvement which lessens the expense of handling grain or manufacturing flour is of the utmost importance. The Marine Elevator recently erected at the EAGLE MILL of Messrs. J. B. A. Kern & Son of this city, is one of the most important additions in the matter of convenience and saving of labor, time and consequently of money, ever made to a mill in the West. It is the only mechanism of the kind west of Buffalo.

A huge tower constructed in a most substantial manner, 120 feet in height, has been erected at the rear end of the mill close to the edge of the dock. This tower contains all the machinery for elevating and the mechanism for propelling the steam shovels in the hold of the grain carrying vessel or steamer. The vessel having been brought into the proper position, a huge adjustable elevator leg is let down through the hatchway, into the grain in the hold. As soon as it is properly adjusted the elevating machinery is started and the grain running in at the bottom, is rapidly elevated, discharged into weighing hoppers, and thence spouted to any bins in the building desired. As soon as the grain immediately about the bottom of the elevator leg begins to get low the steam shovels driven by a system of ropes and pulleys, are set at work, which scrape the grain from a distance up to such a position that it will rapidly feed into the boot of the elevator leg. The apparatus at Messrs. Kern & Son's mill has an elevating capacity of 10,000 bushels per hour, and their grain storage capacity is not far from 200,000 bushels. We saw a cargo of nearly 50,000 bushels of "No. 1 Hard" from Duluth unloaded in a few hours May 30. Messrs. Kern & Son are now able to have the best wheat in America delivered at minimum cost in their mill ready for grinding, and from actual figures we are convinced that with the present facilities for handling grain and making flour, they can turn out as good a quality of flour for as little money as any mill in the world. Mr. P. Robertson, of Milwaukee, directed the entire construction of the elevating machinery, ably assisted by Pierce Clark of R. Dunbar & Co. of Buffalo. The fine performance of the machinery on its first trial, speaks well for the mechanical ability of these gentlemen.

## ITEMS OF INTEREST.

SACKCLOTH or canvas can be made perfectly impervious to moisture, equal to leather, by steeping it in a decoction of one pound of oak bark with fourteen pounds of boiling water. The cloth has to soak twenty-four hours, when it is taken out, passed through running water and hung up to dry. This quantity is sufficient for eight yards of stuff. The flax and hemp fibers, in absorbing the tannin, are at the same time better fitted to resist wear.

A HECTOGRAPH.—The French is for several reasons, we understand, superior to any other. The composition is as follows:

Good ordinary glue.....	100 parts.
Glycerine.....	50 "
Barium sulphate finely powdered....	25 "
(Or the same amount of kaolin)	
Water.....	375 "

Some use nothing but the glue, glycerine and water. A piece of tin turned up at the edges a half inch will hold the mixture. First dissolve the glue in water, heat it, add then the glycerine. Use aniline ink.

I have seen a good deal of fine work turned out by St. Louis machine shops, but about the finest job that has come under my notice in a long time was a couple of smooth rolls for a local flour mill, which I came across just before they were delivered. One of these the foreman laid lengthwise on the top of the other and while he held a lighted candle on one side of the set, I tried to catch a glimpse of the candle rays from the other side by looking, or rather trying to look, between the rolls. Although that part of the room was dark, I couldn't discover the faintest ray of candle light. The rolls were next placed side by side, in contact, and some putty was placed between them near each end, so as to form a kind of trough, which was filled with water. I hope no one will think I am exaggerating when I say that not a drop of water passed between the rolls to the floor, although it was allowed to stand for quite a while.—*Age of Steel*.

A LADY correspondent of the *Michigan Farmer* (Detroit), writes as follows:

I will give my way of making salt-rising bread: Take half a teacupful middlings, a pinch of salt, pour in boiling water and stir it up; set in a warm place to rise. Make this the day before you wish to bake. Take one or two spoonfuls of this rising, or the whole of it, put in a bowl of warm water, stir in flour, set in a warm place to rise. I pour

boiling water in the flour and enough cold to cool it—about half and half; let this sponge rise, after you put your bowl of emptyings in it, about one hour. Knead the loaves and set in a warm place to rise. You can get your baking done in the morning in this way.

To make a good stain for ebonizing wood, take one gallon of vinegar, one-half pound of green copperas, one-quarter pound of China-blue, two ounces of nut gall, two pounds of extract of logwood. Boil over a slow fire; then add a pint of iron rust.

WHAT PAINT BEST PROTECTS IRON?—Among all things that require most protective paint, for iron, says an exchange, are carriages, farm wagons, plows and agricultural machinery, from which fact it seems plausible that manufacturers of the like ought to be able to give the best information required; but too often, on the contrary, they are the very class least likely to have made a study of the matter. Any mineral paint, on general principles, would be most apt to meet such requirements, and it is quite confidently asserted that the paint that most effectually protects iron, is red lead. Not in color is it as well suited, but that is only a secondary consideration, and easily overcome by painting it over with color desired. It contains the following advantages for the preservation of the iron, which is the main object to be gained:

1. Dries easily with raw linseed oil, without an oil-destroying drier.

2. After drying it remains elastic, giving way both to expansion and contraction of the iron without causing the paint to crack.

3. It imparts no oxygen to iron, even when constantly exposed to damp—a fact to which all farm wagon makers can testify.

4. It hardens where it has been spread thickly without shriveling, forming the toughest and most perfect, insoluble combination of all paints. As proof of this assertion, it is used by calico-printers for red-figured prints, holding out against soap and water; by gas-pipe fitters as the best paint to resist ammonia and tar; by the English iron-ship builders for painting the hulls of iron ships—namely, two coats of red lead and two of zinc-white; by wagon and plow-makers for painting wagon-gears and plows; by knowing carpenters for painting wood that comes in contact with damp brick in walls, as it preserves wood from rot, insects, etc.

For the benefit of those who are uninstructed how to mix pure red-lead for paint, it should be made known that pure red lead powder, after being slightly pressed down with the finger, shows no lead crystals. When they are visible, it is merely partly converted and not first quality. It should be ground in pure, old linseed oil, and if possible, used up the same day, to prevent it combining with the oil before it is applied, thus losing in quality. No drier is necessary, as in the course of a few days the oil forms a perfect, hard combination with the lead. American linseed oil is as good as any imported, where the manufacturer has given it age, and not subjected it to heat, as is the custom, by steaming it in a cistern to qualify it quickly for the market. It deteriorates in quality when heated above 160° Fahr. This red lead paint spreads very easily over a surface, and the best of finish can be made with it, even by a novice in painting.

TAR SMOKE FOR DIPHTHERIA.—Ruth Lockwood, the nine-year-old child of Thomas Lockwood, a compositor in the *N. Y. Times* office, became violently ill with diphtheria on Tuesday night. She was so weak that it was deemed dangerous to try tracheotomy, or cutting open the windpipe. On Thursday Dr. Nichols of 117 West Washington Place, who was attending her, received a copy of the *Paris Figaro*, which contained a report made to the French Academy of Medicine by Dr. Delthil. Dr. Delthil said that the vapors of liquid tar and turpentine would dissolve the fibrinous exudations which choke up the throat in croup and diphtheria.

Dr. Delthil's process was described. He pours equal parts of turpentine and liquid tar into a tin pan or cup and sets fire to the mixture. A dense resinous smoke arises, which obscures the air of the room.

"The patient," Dr. Delthil says, "immediately seems to experience relief; the choking and rattle stop; the patient falls into a slumber and seems to inhale the smoke with pleasure. The fibrinous membrane soon becomes detached, and the patient coughs up microbicides. These, when caught in a glass may be seen to dissolve in the smoke. In the course of three days afterward the patient entirely recovers."

Dr. Nichols tried this treatment with little Ruth Lockwood. She was lying gasping for breath when he visited her. First pouring about two tablespoonfuls of liquefied tar on an iron pan, he poured as much turpentine over it and set it on fire. The rich resinous smoke which rose to the ceiling was by no means unpleasant. As it filled the room the child's breathing became natural, and as the smoke grew dense she fell asleep.



## BREADS.

BY JULIET CORSON, SUPT. OF THE N. Y. SCHOOL OF COOKERY.

It is not difficult to make good bread if certain fixed principles are kept in mind, and some facts; light bread is not only more palatable but actually more nourishing than that which is heavy and soggy, because it more readily permits admixture with the gastric juice, in the process of digestion. Bread is made light by the mechanical action of carbonic acid gas upon the dough; this action is produced by the fermentation arising from the use of yeast with flour and water under certain conditions of warmth, the process being called "raising" the dough. It has been proven by scientific investigation, that the best and most nutritious bread is that which can be raised most quickly, because in prolonged raising, or fermentation, some of the nutritious elements of the flour are lost. Dough for bread can also be raised by using leaven, which is a piece of sour dough saved from one baking to the next, salt-risings, cream of tartar and soda, and baking-powder, which is a combination of the two last named ingredients with starch or rice flour.

The three first methods are usually slow, owing to the quantity of yeast or leaven employed, and more or less of the nutriment in the flour is destroyed by fermentation; in using cream of tartar and soda, or any baking-powder, the carbonic acid gas is generated as soon as the water used for moistening the dough unites with them; this dough must be baked before the gas escapes, otherwise the bread or biscuit will be heavy; in using this process very little nutriment is lost from the flour.

The best flour for bread is made from what is called winter wheat; the flour has a slight yellowish tint; when a little of it is pressed in the palm of the hand it retains the marks of the skin after the pressure is removed; if mixed with water it absorbs more than fine white flour, and forms a tough elastic dough, from the quantity of gluten it contains. Fine white flour, which is nearly all starch, does not make the best bread; it looks white and tastes well, but is less nutritious than that made from a stronger and darker flour. Below are given directions for making bread by these different methods.

**HOME-MADE BREAD, SLOW PROCESS.**—For two loaves of medium size use three and a half pounds of flour, reserving half a pound for kneading; put three pounds of flour in a bread-pan or wooden bowl, make a hollow in the centre, without exposing the bottom of the pan; put into this hollow a pint of lukewarm water, a heaping teaspoonful of salt, and a gill of good yeast; mix with the water and yeast enough of the flour to make a thick smooth batter; gradually mix in the rest of the flour, working the dough with both hands until it is soft and smooth; then gather it from the pan, dust flour under and over it, cover it with a thick towel folded several times, and place the pan where no cold draughts can lower the temperature of the dough. Sometimes only part of the flour is mixed with the yeast and water, the remainder being left around the sides of the pan to protect the sponge, or thin batter or dough from the air. Usually this dough or sponge is set to rise at night, and is light enough in the morning to knead and prove, before baking; this lightness is shown by the presence of innumerable bubbles of the gas which penetrate every portion of the dough, making it porous or "light." By increasing the quantity of yeast the process of raising the bread is hastened, but care should be taken to avoid using yeast enough to make it bitter.

When the dough is light, turn it out on a floured bread board, and work or knead it with the hands, using flour enough to prevent it sticking to them, for fifteen minutes; then form it in two loaves, put them in buttered pans, cover the pans with a folded towel, and place them near the stove to rise to twice their volume; then prick the loaves two or three times with a fork, brush them with melted butter or oil, and bake them in a moderately hot oven, taking care that they do not burn. To ascertain if the bread is done run a knitting-needle or small knife-blade into the centre of the loaf; if it has no dough or moisture on it when it is withdrawn the loaf is properly cooked. If a hard crust is desired let the bread cool without covering it; if it is wanted soft wrap it in a towel until it is cool.

Sometimes in warm, damp weather bread-dough or sponge will sour before it is sufficiently light; in that case when the dough is light dissolve a saltspoonful of baking-soda in half a cupful of lukewarm water, and thoroughly incorporate it with the dough during the kneading process, using a little additional flour; only enough soda should be used to correct the acidity of the dough; and, as already directed, it must be very carefully mixed with the dough, or it will show

throughout the bread in yellowish spots after it is baked.

**HOME-MADE BREAD, QUICK PROCESS.**—For two medium size loaves of bread use three pounds of flour, reserving a quarter of a pound for kneading; dissolve one small cake of compressed or German yeast in one cupful of lukewarm water, put it into an earthen bowl and mix with it flour enough to form a batter which will for a moment hold a drop from the mixing spoon; cover the bowl with a folded towel, place it near the fire, in some place where it is possible to bear the hand, and let it rise until it is full of little holes, or about twice its original volume; this will be in about half an hour; then add another cupful of lukewarm water containing a teaspoonful of salt, and enough more flour to make a soft dough; turn this out on a floured board, and knead it for five minutes, using sufficient flour to prevent the hands being moistened with the wet dough; when the dough is properly kneaded divide it in two loaves, put them in buttered pans, cover them with folded towels and set them near the stove to rise to twice their volume. When the loaves are light bake them in a quick oven, according to the directions given in the preceding recipe.

This preparation of dough can be baked in the form of biscuit or rolls, a tablespoonful of melted butter being stirred into the dough before kneading it; the little rolls may be brushed with a teaspoonful of sugar dissolved in milk to make them glossy, before taking them from the oven.

**SALT-RISINGS BREAD.**—This bread is very white, moist, and sweet, somewhat resembling baking-powder bread, and is useful for those emergencies when yeast cannot be obtained; but it is less nutritious than quick home-made bread, because the process of fermentation is prolonged.

To make it, put a pint of boiling water into a two quart pitcher, with a teaspoonful each of salt and sugar, and a saltspoonful of soda, and let the pitcher stand on the table until its contents are cool enough to permit the hand to be placed in them without burning it. Then beat in sufficient flour to form a batter thick enough to hold a drop from the mixing spoon; set the pitcher in a kettle of water just warm enough to bear the hand without burning, cover the pitcher with a folded towel, and keep the water at this temperature until the batter is foaming and has risen to twice its original height. This may be three or four hours. When the batter is properly risen, mix with it flour enough to make a soft dough, and knead it as directed above, for five minutes; then form it into loaves, put them into buttered pans, let them rise until their volume is doubled, and then bake them like other loaves.

**SODA BREAD.**—Sift together three times, two pounds of flour, a heaping teaspoonful each of salt and baking-soda, and two heaping teaspoonfuls of cream of tartar. Have ready two iron bread-pans well buttered, and see that the oven is hot; then quickly rub or chop into the flour a tablespoonful of lard or butter, and mix it to a soft dough with a pint of cold milk or water. Work as fast as possible; the success of bread of this kind depends upon the rapidity with which it is mixed and baked.

**BISCUITS.**—Biscuits are made like soda-bread: or, two heaping teaspoonfuls of baking-powder are sifted with a level one of salt, and a pound of flour, and then they are finished as the bread is, except that they are baked in small bits instead of in loaves.

More butter or lard is used with biscuit than with bread, and milk is generally liked for mixing them.

In general bread-making, various additions are at the discretion of the cook. Sometimes potatoes, boiled and mashed, are mixed with the dough or sponge of bread; they make the bread more solid and moist, but do not increase its nutriment. Lard, butter, sugar, and milk, are used at discretion; but it is generally believed that bread made simply with flour, salt, water, and the "raising" agent, is the most palatable and wholesome.

**TINNING BOXES FOR BABBITT.**—Clean the shells, wet with muriate of zinc and one-tenth sal ammoniac; put a piece of block tin in the shell, heat until the tin melts, rub the tin over the iron (with a piece of wood) and throw off the surplus. The babbitt ought to hold to shells thus tinned.

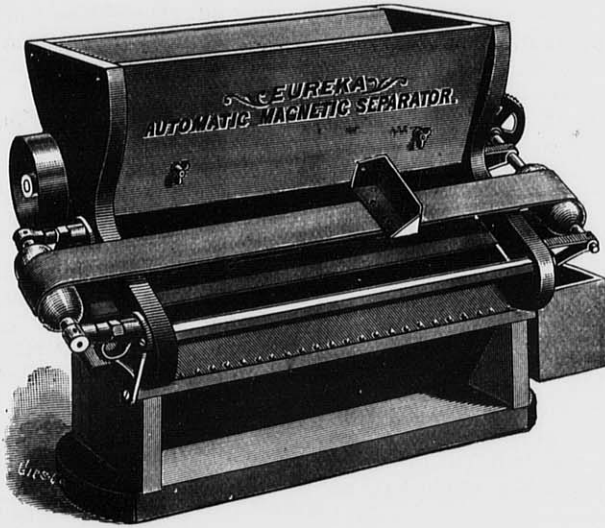
## THE "EUREKA" AUTOMATIC MAGNETIC SEPARATOR.

The introduction of wire binding attachments to the reaper, made some sort of an apparatus for removing the pieces of wire left in the grain after being threshed an absolute necessity. To effect this, the common horseshoe magnet, arranged in gangs and placed in the spouts through which the grain flowed, was used. The use of these magnets revealed the fact that a large amount of other metallic material, aside from the wire used in binding, such as small bolts, nails, tacks, pieces of sheet-iron and particles of ore were found mixed with the grain, which could not be removed without the aid of some sort of magnetic arrangement.

The gang magnets were found to be defective, as it was found necessary to remove them from the spouts at stated times and brush off, by hand, the metallic material that had been attracted to the magnets. While this was being done it was also necessary to stop the flow of grain, otherwise the metallic material would pass on with it. To obviate these difficulties is the design of the machine here illustrated.

A new patent was granted, for an important change by which the machine was greatly improved. The improvement consists of sheet iron being placed on the poles of the magnets, which becomes charged with magnetism, making a strong magnetic field for arresting iron in the various forms in which it is found in grain. It also serves as an armature or keeper for preserving the strength of the magnets. This is of great importance, as the strength of the magnets will remain the same for an indefinite period. A feed-roll has also been added, which makes the flow of grain uniform and even.

The cut here shown illustrates the above described machine, and its operation is as follows:



The grain is fed into the hopper, and by the feed roll is distributed evenly the entire length of the machine.

It first falls on heavy zinc, which being a non-conductor of magnetism, particles of iron, intermixed with grain, flow together until

they reach the magnetized sheet-iron, where the iron particles are held until removed by the wiper attached to an endless belt, which passes over it once a minute, depositing them in a box at the end of the machine.

From above description it will be seen that the machine is simple and durable, and entirely automatic in its operation.

The experience of those using the ordinary magnets has shown that no miller, although he may not grind grain harvested by reapers having the wire-binding attachment, can afford to be without something for removing this material, and especially is this the case when rolls are used, to say nothing of the immense damage done to bolting cloths where no precaution is taken. This machine will, no doubt, pay for itself many times each year, even in a mill of small capacity.

The price of these machines has been greatly reduced and the Automatic principle on which they work make them very desirable. The machines are manufactured by the well known firm MESSRS. HOWES & EWELL, of Silver Creek, Chataqua Co., N. Y., who will be pleased to furnish any further information desired.

## A SERMON AT SAILORS' SNUG HARBOR.

The frontispiece of the June *Century* is an engraving of St. Gaudens' statue of Robert Richard Randall, the founder of "Sailors' Snug Harbor" on Staten Island; and Franklin H. North contributes a lively anecdotal paper on the Harbor, from which we quote a typical sermon of the Snug Harbor preacher:

"Chaplain Jones, already mentioned, presides at the little church in the grounds of the Harbor. He is a sailor himself, having served before the mast many years, and knows how to talk to those who 'follow the sea'. When a mere lad he ran away from his English home and shipped aboard an East India-man. He is about sixty-five now, and many years ago forsook the sea to study theology. As soon as he was qualified, he went among the sailors of the great lakes, and afterward opened a Bethel in St. Louis. Then he returned hither and became pastor of the Mariners' Church. Worn out from early exposure and hardships, he was about to start for Europe in search of health and

rest, when he was appointed to his present post by the trustees.

"The visitor to the Harbor who fails to hear him address his shipmates robs himself of a spectacle at once interesting and unique. Familiar with the characteristics of the sailor Dr. Jones addresses them in his own language, and this is the prime reason of his influence over them.

"Here is the substance of a sermon from the text, 'Let go that stern-line' which is given in substance: 'I once stood on the wharf watching a brig get ready for sea,' began the Rev. Mr. Jones. 'The top-s'ls and courses were loosed, the jib hung from the boom, and the halyards were stretched out ready to run up. Just at this moment the pilot sprang from the wharf to the quarter-deck, inquiring as he did so of the mate in command, 'Are you all ready?'

"'All ready sir,' said the officer. Then came the command: 'Stand by to run up that jib!—Hands by the head-braces!—Cast off your head-fast and stand by aft there to let go that stern-line!—Let go!—Man the top-s'l halyards—Run 'em up boys—Run 'em up! Does the jib take?—Haul off that starboard sheet!'

"'She pays off fine—there she goes, and—Hilloa! Hilloa! What's the matter? What's fast there? Starboard the helm! Starboard!' shouts the pilot. 'What holds her? Is there anything foul aft there? Why, look at that stern-line! Heave it off the timber-head!—Heave off that turn.'

"'It's foul ashore, sir!' says one of the crew. 'Then cut it, cut it! D'y'e hear? Never mind the hawser! Cut it before she loses her way.'

"By this time there was a taut strain on the hawser. A seaman drew his sheath-knife across the strands, which soon parted, the brig forged ahead, the sails were run up and trimmed to the breeze, and the brig *Billow* filled away.

"So, too, when I see men who have immortal souls to save, bound to the world by the cords, the hawsers of their sins, then I think of that scene, and feel like crying out: Gather in your breast-lines and haul out from the shores of destruction. Fly, as Lot, from the guilty Sodom! Oh, let go that stern-line."

**COLUMBUS, GA., WATER POWER.**—There are many people now visiting Columbus to whom it may appear a little marvelous, but the water power of this city is sufficient to drive 800,000 spindles, with their accompanying machinery. Within the lowest stage of the river there is, within two miles of the city, a fall of 125 feet, with 300 horse power to the foot fall, which gives a total horse power of 37,500. During nine months of the year the volume is double and gives an increased power of 75,000 horse power. It takes about 3,000 horse power to drive the Eagle and Phenix, the Muscogee and the Columbus mills—only about one-tenth of that which is available. In order to show the immense power of this volume of water, let the calculation be made. Mechanically speaking, a horse power is the equivalent of raising 33,000 pounds one foot high in one minute of time, but the expression horse power is to be considered merely as a conventional term. The actual work of a horse is the equivalent of raising 25,000 pounds one foot high in one minute for seven hours out of twenty-four. Since a steam engine will work continuously it follows that one horse power of the engine is equal to 43 horses. Now make the calculation and you will find that the awter power at Columbus is equal to raising over 7,500,000,000 pounds one foot high per minute.

With a view of avoiding explosions, M. Schlumberger recommends that a bottle of ammonia should be placed in each barrel of petroleum. On ignition by accident or otherwise, the bottle would break and the ammoniacal vapors would at once extinguish the fire. Dr. Pietra Santa proposes to apply this method to collieries liable to fire-damp. Tanks filled with ammonia, would, it is said, stop the combustion, as it could not continue in an ammoniacal atmosphere.

**AN IMMENSE DAM.**—A French engineer in Brazil has lately been selected to construct what will probably be, when completed, the largest dam in the world. The dam will be 940 feet long by 58 feet high, and two smaller ones will close side depressions. This work will, it is calculated, back the water over 1,500 acres, and retain 14,000,000 cubic meters of water, sufficient to provide for all the cattle of the regions during three years, and for the irrigation of 5,000 acres of flat bottom land alongside the river bed below. The rivers of Ceara flow in the wet season alone.

## FOR SALE.

A horizontal boiler and engine in first-class condition. Boiler 15 horse power. Engine 10 horse power. Can be seen running at the RIVERSIDE PRINTING OFFICE, 116 and 118 Grand Avenue, Milwaukee. Also Feed Water Heater and line of Shafting.



## UNITED STATES MILLER.

PUBLISHED MONTHLY.

OFFICE NOS. 116 & 118 GRAND AVENUE, MILWAUKEE.  
Subscription Price ..... \$1 per year in advance.  
Foreign Subscription ..... \$1.50 per year in advance.

MILWAUKEE, JUNE, 1884.

## ANNOUNCEMENT:

WM. DUNHAM, Editor of "The Miller," 69 Mark Lane, and HENRY F. GILLIG & Co., 449 Strand, London, England, are authorized to receive subscriptions for the UNITED STATES MILLER.

We send out monthly a large number of sample copies of the UNITED STATES MILLER to millers who are not subscribers. We wish them to consider the receipt of a sample copy as a cordial invitation to them to become regular subscribers. Send us One Dollar in money or stamps, and we will send THE UNITED STATES MILLER to you for one year.

The United States Consuls in various parts of the world who receive this paper, will please oblige the publishers and manufacturers advertising therein, by placing it in their offices, where it can be seen by those parties seeking such information as it may contain. We shall be highly gratified to receive communications for publication from Consuls or Consular Agents everywhere, and we believe that such letters will be read with interest, and will be highly appreciated.

CAWKER'S AMERICAN FLOUR MILL AND MILL FURNISHERS' DIRECTORY FOR 1884, published by E. Harrison Cawker, of Milwaukee, Wis., and sold for (\$10.00) ten dollars per copy, is now ready for delivery. It shows the result of an immense amount of labor, careful inquiry, and studious attention to details. It is without doubt the most accurate trade directory ever published, and will be of untold value to those desiring to reach the milling industry of America.

We glean from this neat volume of 200 pages containing no advertisements, that there are in the United States of America and our neighboring Dominion of Canada 25,050 flouring mills, taking them as they go great and small. The work indicates in about 10,000 instances the kind or kinds of power used by the mills, and the capacity in barrels of flour per day. It further indicates cornmeal, buckwheat, rye-flour and rice mills. It shows that the number of mills in the various states and territories of the United States are as follows: Alabama 153; Arizona 17; Arkansas 343; California 222; Colorado 54; Connecticut 288; Dakota 81; Delaware 98; District of Columbia 5; Florida 66; Georgia 631; Idaho 21; Illinois 1123; Indiana 1089; Indian Territory 14; Iowa 790; Kansas 489; Kentucky 713; Louisiana 61; Maine 280; Maryland 353; Massachusetts 340; Michigan 846; Minnesota 487; Mississippi 386; Missouri 1025; Montana 21; Nebraska 250; Nevada 13; New Hampshire 182; New Jersey 442; New Mexico 32; New York 1902; North Carolina 848; Ohio 1443; Oregon 145; Pennsylvania 3142; Rhode Island 51; South Carolina 274; Tennessee 801; Texas 703; Utah 110; Vermont 247; Virginia 781; Washington Territory 61; West Virginia 447; Wisconsin 777; Wyoming 2.

In the Dominion of Canada we find the record as follows: British Columbia 17; Manitoba 54; New Brunswick 198; Nova Scotia 102; Ontario 1160; Prince Edward's Island 39; Quebec 531. Total 25,050.

Taking the work throughout, and it is highly interesting to all concerned in the trade, and we take pleasure in recommending it.

THE export of wheat from Australia to Europe for the present year is estimated at 20,000,000 bushels.

THIRTY-EIGHT thousand five hundred and ninety-seven immigrants arrived in the United States during the month of March.

It is reported that the Geo. T. Smith Midlings Purifier Co. soon will commence an action against Messrs. W. & J. G. Greey of Toronto, Canada, for infringement of their patents on centrifugal reels.

It now seems probable that all the bills introduced in Congress relating to patents during this season will be beaten, and that no changes whatever will be made in the present law.

AN Austrian exchange commends the utility of the Minneapolis Millers' Association to the milling interests of Minneapolis, and suggests to Austrian millers the wisdom of following the example set by Minneapolis millers.

We have received a copy of the 1884 Wheel-book of the Flenken Turbine Co., of Dubuque, Iowa. It contains much interesting matter to water-wheel users and sets forth the advantages of the Flenken Turbine in good shape.

MAY 17, the N. Y. flour trade committee resolved all flour inspected sound shall have the name of the New York Produce-Exchange inspector and grade it represents, together with the month and year, branded upon each sack and on the side of each barrel.

AUGUST HAUCK, milling expert, in Glatz, Schlesien, Germany, writes us that he has discovered a method of exterminating all insect life in flour-mills without danger to

human life. The Berlin Board of Health has experimented with it and pronounce it a good thing.

WEGMANN'S porcelain rolls are made at the *Werkzeug und Maschinen Fabrik* at Oerlikon, Switzerland. This establishment also manufactures a machine for corrugating rolls which is said to be one of the best yet put in use. We believe there is but one of these corrugating machines in the United States.

THERE is no other country in the world where there is such a variety of good flouring mill machinery as in the United States, but the number of really competent millers to use this machinery is comparatively small. It requires a good deal of common-sense and experience to get the best results from any machine.

A KIND of bread named "pumpnickel" is used very extensively by the inhabitants of Westphalia. It is made of rye meal and frequently is turned out in 60 pound loaves. It is baked in a brick oven where it is allowed to remain for twenty-four hours. The average Westphalian stomach is capable of digesting it.

WE have received No. 1, Vol. 1, of *The American Grain and Provisions Journal*, New York, published weekly by H. J. Miller. The subscription price is \$6 per year. It is intended to be a reliable authority as to prices in the various markets and also contains a list of Floating Cargoes from the U. S. to European ports.

THE bill now before the House of Representatives known as the National Bankruptcy Bill has not yet become a law, and it is reported that it will probably not be voted upon until after the Presidential nominations are made. The average business man cannot see clearly why a matter of special commercial importance should be shoved aside unceremoniously on account of politics.

THE opinion has been frequently expressed that the recent failures will not have any general damaging effect on the business of the country for the reason that speculators only were concerned. This is not true. The money of thousands of individuals, persons and corporations has been most recklessly put in jeopardy by speculators, and many interests have been injured to a greater or less extent. If no one was hurt but the stock-gamblers the general public would have no cause to worry.

IN Europe, in many places the milling and baking business is carried on by the same firm and it is said to be profitable. There are very few establishments of that kind in the United States. English crackers and biscuits are exported to every country under the sun, and it is claimed that the finest crackers in the world are made in England. Of late years some very fine crackers have been produced in this country. We think American millers and bakers would do well to turn considerable attention to the manufacture and export of crackers and biscuits.

THE discussions on the Morrison bill make particularly timely a paper announced for the June HARPER'S, on "The New York Custom-house." As the collector of the port of New York deals with more than two-thirds of all the importations of the country, the article is practically a comprehensive sketch of our customs-revenue system. The writer gives a quantity of interesting facts and tables as to the imports and shipping of the country, and follows the complicated processes of customs-entry through all the divisions of the Custom-house. Many illustrations add to the interest of the article.

SENATOR COLLUM has introduced a bill prohibiting speculation by officers of national banks. If there is at present no law that will do this, the bill certainly should be passed, and if there are efficient laws to punish bankers guilty of such dishonest practices as have come to light in New York and elsewhere during the past month they should be enforced most rigorously. The recent failures caused by the most wild and reckless speculation and by absolute frauds have carried ruin to many a home and have done much to injure the business of thousands of honest and responsible bankers.

THE Grant and Ward affair brings the blush of shame and sorrow to the face of every American citizen for the reason that it menaces the reputation of a citizen, twice elected President of the United States; a citizen on whom has been bestowed more honors by foreign countries than ever before given to an American. It is said that Gen. Grant knew nothing of any improper prac-

tices by the firm of Grant and Ward, and that he and his family have been financially ruined by the failure, but Gen. Grant should never have allowed himself to be connected with any firm of Wall street gamblers. The people knew this long ago, and Gen. Grant knows it now to his sorrow.

## FLOUR IN SANTA CLARA, CAL.

It might be expected that a section as famous for its fertility as is Santa Clara county, would be noted for its flour, and so it is. The product of this valley is generally esteemed as the best in the State, coming as it does from lands of exceptionable fertility. The milling business, which depends on the flouring interest, is therefore a flourishing one, and a notable representative of it is found in the White Rose Flouring Mills, at Santa Clara. This establishment, though highly successful from a business point of view, is but of recent growth, its establishment not dating back any farther than 1879. It takes a great deal of practical knowledge to make a successful miller, and more of financial ability to make a flour mill a success—the results of five years' work are therefore in themselves testimony of the qualities and character of those to whose hands the destinies of this institution have been entrusted. The size of the mill is 175 feet by 300. It cost sixty thousand dollars, and is a three story, three hundred barrel mill, capable of turning out 90,000 barrels a year. Fourteen hands are employed there. The officers are H. M. Leonard, president, — Mayberry, vice-president, H. Black, secretary and treasurer; superintendent, J. A. Baker—all practical business men. The superintendent has the entire charge of the mill, is a practical miller, thoroughly understands the business in every particular, and is emphatically the right man in the right place. The flour made is generally pronounced as amongst the best in the State, and finds a ready market, not only in the Santa Clara valley, but in San Francisco and the Pacific States generally, and has been received with favor even in England. There is easy transportation by rail or bay from the mill to San Francisco, to deep water vessels in the harbor, to any part of the Pacific Coast, or even the East, and at favorable rates. The mill is supplied with all the latest improvements and inventions in the science of milling, and produces an article at the same time superior and cheap in itself, and well worthy the traditional reputation of California.—*S. F. Journal of Commerce.*

## M. PASTEUR'S LATEST DISCOVERY.

HYDROPHOBIA SUCCESSFULLY COMBATTED BY INOCULATION.

M. Louis Pasteur, the celebrated French chemist, claims to have made a discovery of the most vital importance—nothing less, in fact, than a complete cure, or rather antidote, for hydrophobia. In an interview with a *Figaro* correspondent M. Pasteur says: Cautionization of the wound immediately after the bite, as is well known, has been more or less effective, but from to-day anybody bitten by a mad dog has only to present himself at the Laboratory of the Ecole Normale and by inoculation I will make him completely insusceptible to the effects of hydrophobia, even if bitten subsequently by any number of mad dogs. I have been devoting the last four years to this subject. I found out in the first place that the *virus rabique* loses its intensity by transmission to certain animals and increases its intensity by transmission to other animals. With the rabbit, for instance, the *virus rabique* increases; with the monkey it decreases. My method was as follows: I took the virus direct from the brain of a dog that died from acute hydrophobia. With this virus I inoculated a monkey. The monkey died. Then with the virus already weakened in intensity, taken from this monkey, I inoculated a second monkey. Then with the virus taken from the second monkey I inoculated a third monkey, and so on until I obtained a virus so weak as to be almost harmless. Then with this almost harmless virus I inoculated a rabbit, the virus being at once increased in intensity. Then with the virus from the first rabbit I inoculated a second rabbit, and there was another increase in the intensity of the virus. Then with the virus of the second rabbit I inoculated a third rabbit, then a fourth, until the virus had regained its maximum intensity. Thus I obtained virus of different degrees of power. I then took a dog and inoculated him first with the weakest virus from the rabbit, then with the virus from the second rabbit, and finally with the rabbit virus of maximum intensity. After a few days more I inoculated the dog with virus directly from the brain of a dog that had just died of acute madness. The dog upon which I experimented proved completely insusceptible to hydrophobia. The experiment was frequently repeated, always with the same successful result.

"But my discovery does not end here. I

took two dogs and inoculated them both with virus taken directly from a dog that had just died of acute hydrophobia. I let one of my two dogs thus inoculated alone and he went mad and died of acute hydrophobia. I subjected the second dog to my treatment, giving him the three rabbit inoculations, beginning with the weakest and ending with the strongest. The second dog was completely cured, or rather became completely insusceptible to hydrophobia."

M. Pasteur then went to a kennel and caressed a dog that had undergone this latter operation. Said M. Pasteur: "Whoever gets bitten by a mad dog has only to submit to my three little inoculations and he need not have the slightest fear of hydrophobia."—*From Paris dispatch to the Chicago Tribune, May 19.*

## MAKING AND APPLYING KALSOMINE.—

Kalsomine is composed of zinc white mixed in proper proportions with water and glue sizing. The surface to which it is to be applied should be clean and smooth. For ceilings the following recipe is recommended: Mix one half pound of glue with 15 pounds of zinc; for walls, one pound of glue with 15 pounds of zinc. The glue, before used, should be soaked over night in water, and in the morning liquefied over the fire. Paris white is often made use of in preparing kalsomine, but it is not so satisfactory as zinc. The mixture may be colored to any desired tint by the addition of suitable pigments. The practical details of preparing and applying the mixture are given herewith from a very reliable source. In case the wall of a large room (say 16x20 feet square) is to be kalsomined with two coats, it will require about one-fourth pound of light colored glue and five or six pounds of Paris white (observe our remark above on the use of this material.) Soak the glue over night in a suitable metallic vessel with about a quart of warm water. If the kalsomine is to be applied the next day, add a pint more of clean water to the glue and set the vessel containing it in a kettle of boiling water over the fire, and continue to stir the glue until it is well dissolved and quite thin. The object of treating the glue in this way is to avoid scorching it. Place the Paris white into a large water pail, pour on hot water, and stir it until the mixture has the consistency of cream. Now mingle the glue liquid with the whitening, stirring it until thoroughly incorporated, and apply it to the wall with a whitewash or large paint brush. The object to be accomplished is to lay the liquid on smoothly, and a good whitewash brush with long and thick hair will answer very well. In case the liquid is so thick that it will not flow well from the brush, add a little hot water until it makes smooth work. When applying it the mixture should be frequently stirred, and the brush should be inserted into it only so deep as to take up what the hair will retain without dropping off. If too much glue is used the kalsomine cannot be laid on smoothly, and will be liable to crack. The object should be to apply a thin layer of sizing that cannot be brushed off with a broom or dry cloth. A thin coat will not crack. In this connection the following recipe for a whitewash used by the Lighthouse Board of the Treasury Department, and said to answer on board, brick and stone nearly as well as oil paint, than which it is much cheaper, may be found useful. Slake one-half bushel of unslaked lime with boiling water, keeping it covered during the process. Strain it and add a peck of salt dissolved in water, three pounds of ground rice boiled in water to a thin paste, one-half pound of Spanish whitening, and a pound of clear glue dissolved in warm water. Mix these ingredients well together and allow the mixture to stand for several days. Keep the wash thus prepared in a kettle or portable furnace, and when used put it on as hot as possible with a paint or whitewash brush. Coloring matters may be incorporated with these several mixtures, as may be required. Spanish brown stirred in will make a pink or red, more or less deep according to quantity. A delicate tinge of this gives a pretty effect for inside walls. Finely pulverized common clay well mixed with Spanish brown, makes a red-stone color. Yellow ochre stirred in makes a yellow wash, but chrome goes further and gives a better color.

"OYE, Mrs. Costigan, but it breaks me poor heart to see the lovely stoof I kin buy at foive cents a yard now, and me payin' twelve cents a yard for two dresh patterns of the self same last year, befoor they had the bastly tariff removed. Sure, this fray thrade is a blessin' to the poor." "So it is the same. Mrs. Dinney. An' will yez be havin' new dresses this year, Mrs. Dinney?" "Well, ef I du be tellin' yez I'm thinkin' not. Yez see, as how it is Moike is out of wurruck since the mills shut down, on account of what they do be callin' 'furrin importation.' But the goods is very cheap if one had the money fur him, Mrs. Costigan."—*Chronicle, (Pittsburg.)*



## STEAM BOILERS IN BAD PLACES.

BY A MECHANICAL ENGINEER.

A place for everything, in the words of the ancient adage, is always a good doctrine, but as to who shall say where the place shall be for this, that and the other thing, is not so easy a problem to decide.

Those who say that to put a steam boiler in a hole below the yard level of a shop premises is a good thing, merely because the coal can be dumped into the fire room a little more conveniently, say what would be very hard to be proved, when all the facts are taken into the account. The place for a boiler is where it can be gotten at on all sides, on the top, and the bottom too for that matter, as repairs generally begin there and are hardest there to execute. If a boiler is put into a pit the chance is an even one, or, in fact, rather against the boiler, that the pit will be a third or a half too small, that it will be imperfectly lighted, about one-half ventilated, and what is worse than all, left without any pretence of convenient and sufficient drainage. The result is that the fireman stands on the edge or on the top of his coal pile while shoveling into the furnace, he must work half the time even in day-light hours, by the aid of a lamp of some kind, he is enveloped in clouds of dust when raking or cleaning fires, and is in a pool of mud and water, when at the end of the week, he must blow out and wash down the interior of the boiler. If to plan and execute this class of construction work in this way is to find in a reasonable sense the right place for a thing, then the useful force of comparisons must be given up as wholly lost.

A very just measure of the right kind of setting or housing in of boilers, and all similar apparatus is the room and convenience which are afforded for the manager of the works to walk easily and conveniently around and over every part of the whole plant. If he can do this there is generally the best chance that some one else will be likely to do it also by way of preparation for his visit, and thus it may come to be regularly known that everything is in its place.

If boilers must be put sometimes in crowded city districts, and hence under sidewalks and in other places where, in steamship fashion, every inch must be utilized, then sacrifices must be made, and the close efficiency of the whole can be kept up only at an expenditure of effort and muscular strength which is unfortunate. Those who build boiler houses in open neighborhoods, where land is to be had at a comparatively trifling cost, so far as spaces for boilers are concerned, do a real injustice to their men and an actual injury to their business when they proceed upon the deep-pit, no-light, no-air, and no-drainage plan which some men appear so much to admire.—*Industrial World*.

## THEY STOOD BY THE OLD MILL.

Writing from Truman's Corners, Pa., a correspondent of an eastern paper tells a pathetic story as follows:

Before railroads destroyed the usefulness of stage-coaches in Pennsylvania, this village was an important coaching station on the old State road, and several converging local turnpikes. In 1840 Cyrus Miller, Lewis Dorr, and John A. Merritt, settled here. Miller bought the tavern then here, and tearing it down erected a larger one. Lewis Dorr, being a carpenter, did the work. Miller also put up a saw mill near by, and employed Merritt as his sawyer. Miller kept the tavern until two years ago, when he deeded his property to his son, but continued to live in the tavern. He had never permitted any change to be made in its appearance, and it is to-day one of the few typical taverns of the old stage-coach days, although its business has for years been only such as the small local trade can give. Miller made a fortune from it, however, in its early days. His mill, although of late years having very little to do, he kept running every day from the time he turned water on, forty-four years ago, and it was, probably, the only old-fashioned upright saw-mill left in this part of the State. John A. Merritt, was the only sawyer that ever manipulated its machinery, and he had grown gray listening to its clatter.

Lewis Dorr, who built the old tavern and the mill, boarded until Friday last at Miller's tavern, having occupied the same room for over forty years. On Monday of last week Miller's son sold the old tavern stand and the mill property against the wishes of his father, who was 75 years old, and whose one great wish it was to die in the house he had founded. The new proprietor was to have possession on March 1. Old Mr. Miller's health had been feeble for some time, and he took the matter of the sale of the property so much to heart that he was obliged to take to his bed, where he sank rapidly and died on the following Thursday night. On Friday forenoon his life-long friend and companion, Lewis Dorr, was found lying on the edge of Truman's brook, under the turnpike bridge, dead, with his face buried in the water. Workmen had been lay-

ing a new floor on the bridge, and a narrow foot way of plank at one side, was the only means by which pedestrians could cross. It is supposed that the old Mr. Dorr was crossing the bridge on this plank, and losing his balance, had fallen into the creek below. He was nearly 80 years old, but very strong physically and mentally. He had never missed a day's work in his forty-four years' residence at the Corners.

At about ten o'clock on Saturday night the cry of fire was raised in the village, for the first time in its existence. A bright light in the direction of the mill hollow, drew the entire population thither. The old saw-mill was in flames, and, as there was no means at hand with which to fight the fire, it was soon destroyed with its contents. Early on Sunday morning Sawyer Merritt called on George Hendershot, the man who had purchased the mill property a few days before. He told Hendershot that the mill had cost Mr. Miller for ten years from \$100 to \$200 a year more to run it than he received for its work, and that there was no possible chance for it to do any better. There were \$125 worth of logs, and \$200 worth of other material burned up with the mill. The mill and machinery were worth \$300. "Now," said Mr. Merritt, "You paid Billy Miller \$700 for the mill, and it wasn't insured. I have come to give you that much."

Hendershot expressed his surprise, and asked for an explanation.

"I helped build that old mill," said Merritt, "and haven't missed a day's sawing in it from the first time I turned the water on the wheels, nearly forty-five years ago, and no other man ever sawed a log in it. Billy Miller sold the property, and his father's dead from it, and Uncle Lew Dorr, I believe, drowned himself because his old friend died. All three of us came to this spot together, and I knew that if I had to step out of that mill and see another man running it, I wouldn't live a week. So I set it on fire and burned it up, and I want to pay you for it." The old sawyer counted out the money and walked out.

The two old friends, Miller and Dorr were buried side by side on Sunday afternoon. On Monday William sent \$700 to John Merritt, saying that he had himself refunded the purchase money for the mill property to Hendershot. Merritt has left the Corners and taken up his residence with his married daughter in Buffalo. He had never been away from the village since he came here, before.

## BELTING.

Belting is rapidly taking the place of cog-wheels. It is a better medium for transmitting power and distributing it throughout a factory. Belts are more convenient, cost less, and are more easily and cheaply repaired when breaks occur; besides the unpleasant noise made by cog-wheels or gearing is avoided.

A French writer on the subject of belts, as compared with toothed gearing, says: "In regard to the relative friction with belts or cords, and with toothed gearing, it is that theoretically the advantage is always more or less on the side of belts or cords; while a practical confirmation of this conclusion is furnished by the instance of a spinning mill in which toothed gearing driving 18 000 spindles was replaced by belts, with a saving of 20 per cent. in friction, or 34 per cent. on the effective driving power transmitted; and in no case do belts practically cause more friction than toothed gearing."

In all manufacturing lines there is probably not one factor that performs more important duties than belting; and yet my experience teaches me that in general, nothing is so little understood.

A man will spend thousands of dollars to build a handsome factory; he will have both the exterior and the interior look well, and shows it with admiration to his friends and the public. He will buy the best make of engines and the latest improved machinery, and will see that everything is arranged to the best advantage and utility—which is all right and proper, and just as a sensible man ought to have his factory well fitted up and properly ordered—but when it comes to belting, without which in their present shape, all his building and machinery would be useless, he is parsimonious and tries to save and see how cheaply he can belt up the handsome factory he has erected. He gets his pulleys too narrow, uses single belts where he should use double, or at least light double, and gets his belting from the party who gives him the width and length for the least money.

Now, you can't get something for nothing. The profits in belting are so small that no one manufacturer can sell ten per cent. cheaper than his neighbor, and yet furnish as good a belt for \$1 as he can for \$1.10, for in the latter case the extra cost is for the better material that goes into the belt.

Then after having purchased the belting, they in many cases, take very little care of it. They will see that the engine and all the machinery is kept nice and bright, and in good

order, but the belts are often put on in a careless manner, the ends cut at random instead of being cut with a square; for, unless the ends are squared, it will make a crooked joint, which will cause the belts to run crooked and often run off the pulleys. Many run the flesh side next to pulley and with the ends of the laps pointing forward instead of backward, and seldom, if ever, clean and oil them. Of course we are now speaking of belt users in general, but there are some who know how to put on belts and take care of them, and also keep a record of each belt in the factory.

Never condemn a belt until the cause of failure has been ascertained. In many cases it will be found, either that the ends have not been cut square, that it has been improperly laced, or that it is not in proportion to the work required of it. In such cases it is not fair to lay the blame on the belt. The average tension at which belts should be run is claimed to be 55 pounds for every inch in width of single belting.

As to the driving power of belting, there is great difference of opinion. To be brief, I will say the size of the pulley has very little to do with the driving power of the belt. It is the arc of contact and the speed at which the belt travels that gives it its power. The greater the speed the greater the driving power; thus you can, by increasing the speed of the belt in proportion, double and treble the driving power of the same belt.—*J. A. Shultz, in The Tradesman*.

## THE PULLEY SIDE OF BELTS.

There are some questions in practical mechanics that never appear to receive a final and authoritative solution under whatever tests. To this class belongs the question: Which side of a leather belt shall run on the pulley face? In some establishments both ways are practiced, and it would seem that under these circumstances, so nearly uniform, the matter might be at last decided. But the foreman or superintendent who prefers the flesh side to the pulley face holds that his belts last longer than those run by the other foreman in another part of the establishment, who "turns his belts inside out." Of course prejudice has much to do in these cases, and probably prevents a fair conclusion.

A writer in a recent number of the *Journal of Railway Appliances* says: "I advocate running the flesh side to the pulley, for the following reasons: Leather is fibrous and curiously constructed as revealed under the microscope, in the form of a triangle, the tender part or grain, representing the top part of the triangle, being very fine and delicate, whereas the flesh part, or bottom of the triangle has a coarser and thicker fiber, and if it is properly skived will be just as smooth as the grain, although a great deal tougher, and will, therefore, stand more wear and friction. If you will notice belts that have run grain to the pulley for any length of time, you will find the grain cracked, and you wonder why. It is because you have subjected the tenderest part of the hide to the hardest usage; the friction has burned the grain, the burning brittled and hardened it; you can never restore it. If you let the flesh part do the work, the grain side being elastic, it will bind the coarser fibrous parts and keep them together."

The principal proprietor of one of the oldest and most extensive manufactories of leather belting in the country recently declared himself as positively and unequivocally in favor of running the flesh side to the pulley, as the result of more than thirty years' observation, and he offered among other reasons, the quaint one that the belt run thus was in the natural position of the hide. *Per contra*, the superintendent of a large establishment, where heavy machine tools are built, runs all his belts grain side to the pulley faces, claiming a much longer life to the belts and a closer contact between belt and pulley face. In his case, however, all the pulleys are of turned and finished iron.

And it is possible that all these disagreements on this question may arise from the differences in the materials of the pulley faces.

Wooden faced pulleys are coming into use again, particularly for pulleys above twenty-four inches diameter, and leather-faced pulleys are very common. It is undeniable that there is a difference in the holding force of these different faces, as there is in their materials.

## NEW AUTOMATIC FIRE EXTINGUISHER.

A system of fire-extinguishing having several novel features and possessing much interest for property owners and insurance men, has lately attracted attention in the East. It consists of a four-inch pipe placed below the frost line and connected with the water-main in the street by an automatic valve so arranged as to check the flow of water into the pipe, and thence throughout the building, till a fire occurs. Smaller pipes connecting with this four-inch pipe run along the ceiling of each floor in parallel rows at a distance of a few feet apart. At intervals of about ten feet in each of these smaller pipes "sprinkler-heads" are

placed. These heads are provided with a thimble of solder which melts at 160°. From a weight on the automatic valve runs a wire along each pipe. This wire is slacked opposite each sprinkler-head and retained so by two solder plates, also fusing at 160°, the arrangement being such that these plates melt a few seconds before the thimble on the sprinkler-head. When the heat in the apartment exceeds 160° these plates melt, permitting the wire to straighten through the tension exerted by the weight of the valve, which at the same time acts to open the latter and admit a full head of water. By the time the current of water has reached the sprinkler-heads the thimble has melted from the same, and jets of water are thrown from each with the full force of the pressure into the room. This system of extinguishers acts only at these sprinkler-heads when the temperature has reached 160°. The temperature at which the heads will melt and the water let in can be varied to suit the wishes of the property-owner. The spray of water from each sprinkler-head is from 20 to 40 feet in diameter. Dry pine, it is said, takes fire at about 600°; thus it will be seen that no appreciable damage could occur before the 160° necessary to release the water was reached. When the valve is thrown open an alarm bell is sounded automatically. This system is being introduced by the New Haven Automatic Fire-Extinguishing Company, 115 Broadway, New York.

## EATING AT NIGHT.

Popularly it is thought injurious, but unless dinner or supper have been late, or the stomach disordered, it is harmless and beneficial—i. e., if one be hungry. Four or five hours having elapsed since the last meal, invalids and the delicate should always eat at bedtime. This seems heretical, but it is not. Food of simple kind will induce sleep. Animals after eating instinctively sleep. Human beings become drowsy after a full meal. Why? Because blood is solicited toward the stomach to supply the juices needed in digestion. Hence the brain receives less blood than during fasting, becomes pale, and the powers become dormant. Sleep therefore ensues. This is physiological. The sinking sensation in sleeplessness is a call for food. Wakefulness often is merely a symptom of hunger. Gratify the desire and you fall asleep. The writer recently was called at two a. m. to a lady who assured him that she was dying. The body was warm, the heart doing honest work. To her indignation he ordered buttered bread (hot milk or tea were better) to be eaten at once. Obeying, the moribund lady was soon surprised by a return of life and desire to sleep. The feeble will be stronger at dawn if they eat on going to bed. Fourteen hours lie between supper and breakfast. By that time the fuel of the body has become expended. Consequently the morning toilet fatigues many. Let such eat at bed-time and take a glass of warm milk or beef tea before rising. Increased vigor will result. "But the stomach must rest." True. Yet when hungry we should eat. Does the infant stomach rest as long as the adult's? The latter eats less often merely because his food requires more time for digestion. Seldom can one remain awake until half-past ten or eleven in the evening without hunger. Satisfy it and sleep will be sound. During the night give wakeful children food. Sleep will follow. The sick should invariably eat during the night. This is imperative. All night the delicate and children may take warm milk, beef tea or oat-meal gruel. Vigorous adults may also eat bread and milk, cold beef, mutton, chicken and bread, raw oysters, all of course, in moderation. Do not eat if not hungry. Eat if you are.—*A Boston Physician*.

WHY HE PUT IN COAL.—"We have many close shaves," said an old railroad engineer yesterday, "but after the scare is all over a person will recollect something that was said or done which will cause him to laugh in spite of himself. I was once running a freight engine on the Allegheny Valley road. One warm night in summer just after a heavy rain, we were pounding along on wild-cat orders. The fog hung like a black cloud over the river and track, making it impossible to see twenty feet ahead of the locomotive. Suddenly a gust of wind lifted the fog, and not more than thirty feet ahead I saw the red glare of a lantern and could trace the outline of a caboose. I knew, although I could hear only the noise of my own train, that the one ahead was moving, but that we were gaining on it. I whistled for 'down brakes,' reversed the lever, and jumped to the ground. As I was leaving the cab, I saw my fireman grab the shovel and begin to pile in coal. My locomotive caught the caboose and lifted it from the track, but stopped before serious damage was done. When we had got straightened out I asked the fireman what made him put in coal when I blew the whistle.

"'Be jabers' was the reply, 'I thought if steam wad help you to start, thin shure ye wud nad some to sthoph.'"—*Cleveland Leader*.



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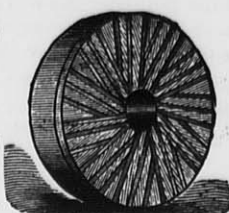
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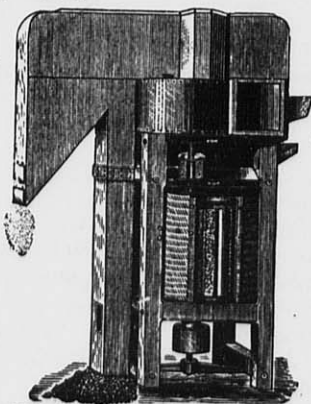
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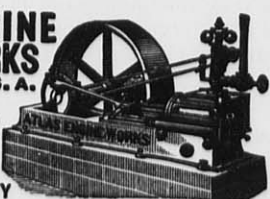
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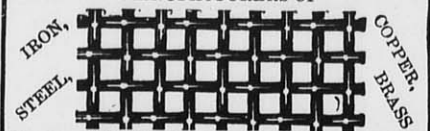
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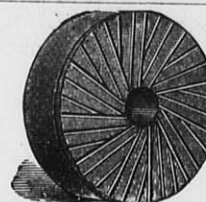
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## INTERNATIONAL BILLS OF LADING.

The introduction of measures concerning international bills of lading in the House of Representatives has awakened public attention in this subject, and may possibly tend to induce owners of steamship lines to do something for the relief of the merchants of this country, whose wishes have so long been disregarded. The subject has now been discussed for a number of years, the first meeting being held in England, and repeated attempts have been made within three or four years by underwriters, merchants and average adjusters to have a uniformity established between the different countries of the globe. But, while they have shown the necessity for a change, the owners of vessels refuse to limit their liability, and give as a bill of lading a receipt which expressly says that out of the great majority of accidents that can happen to a cargo they will be responsible for scarcely none. They state that they will not be held liable for the "acts of God," meaning by this lightning, storms, or shipwreck. They give no guarantee against cold, heat, mould, rats, mice, leakage, escape of steam, water, bad packing, fermentation, injury by being placed with other commodities, deviation in the course of the vessel, protracted voyage, or for the acts of the master and his crew. The bill of lading, as the custom now exists between this country and Great Britain, is a receipt saying that the steamship company has on board the ship the goods mentioned, but which assumes no further liability. It does not conceive that it is bound to make a loss good, even when happening through the negligence of its own servants.

It is this state of things which the bill, prepared by the Chamber of Commerce and introduced into the House of Representatives by Mr. Darwin R. James, seeks to rectify. In the ordinary intercourse of life, when a dealer delivers a barrel of sugar or a hundred bushels of wheat to a neighbor, he takes a receipt, and the receiver is obliged to make good any loss which may occur. The carriers of the sea do not, however, assume this liability. They take the goods at owner's risk. It is not to be wondered at that they should ask a release from damages in cases where there is a storm or the vessel has been cast away, but this exemption should not extend to faults which were clearly those of the master, the agent or the crew. Rats are exempted on nearly every bill of lading, yet it would be perfectly practicable to lessen their numbers on a single ship to so great a degree that the damage they could do would scarcely be appreciable. The companies decline to pay for damages caused by improper storage, but nothing would be more easy than for them to have this done in a way that no harm could follow. If turpentine is near wheat, and the barrels leak, the ship does not pay for the loss, although the two ought not to be carried on the same vessel, or at least in proximity to each other. Everywhere and in every way the ship owners limit their responsibility, and it is to cause them to give, as any other custodian might be required to do, a full and binding receipt, except in a few well-known cases, that the shippers of grain, provisions, cotton and other commodities ask for interference by Congress.

It is, however, true, as pointed out by Mr. Gustav Schwab, in his testimony before the committee, that legislative interference is to be deprecated. He does not dispute the necessity for a revision of these customs, but thinks they had better be left to the agreements of the merchants, than be imposed upon them by statute. "We admit," said he, "that many forms of bills of lading now in use leave the shipper largely at the mercy of the ship-owner or the underwriter, and that it is practically impossible for him to cover himself or to be sure that he is covered against risks that he is justly unwilling to assume. All this, and more than this, we fully concede, and some of us have been trying our best to bring about the reform which the originators of this bill have in view. What we differ in is how to do it. We believe it to be a much safer plan to delay statutory legislation until the parties interested in this matter, through the commercial bodies representing them or otherwise, have arrived at an understanding between themselves, and until such an understanding has crystallized into an accepted custom. The common law itself is nothing else but a collection of accepted practices, first sanctioned by custom and then upheld by the courts. Statutory legislation is apt to bear the impress of the party to the question that seeks to obtain it, and in a delicate matter of this kind a satisfactory improvement cannot be safely anticipated from it."

These are wise words, and should be heeded by the House Committee on Commerce, to which it was addressed. Rash and revolutionary legislation defeats its own purpose. These are also, we see, the views of the Produce Exchange, as evidenced by the remarks made yesterday. We have no doubt that in

time the difficulty will be solved, and the merchants and ship-owners be able to agree on a common form which will protect both and do justice to both.—*American Grain and Provisions Journal.*

## USE OF CHILLED ROLLS IN LOW MILLING.

The extraordinary success which was attained in high milling by the use of chilled rolls led milling engineers to the construction of roller mills which could be used for low milling, for which only stones have hitherto been employed. At the present time, roller mills for low milling are in successful operation at many places, and prove of great advantage, as they require much less power for the same quantity of flour produced than stone mills. The quality of the flour ground in low roller mills is also superior to that obtained between stones.

Rolls were generally used, at first, in high milling; rolls with smooth surface for sizing; corrugated rolls for breaking, and smooth rolls with great pressure for final reduction. Within about four years these rolls have been also used in low milling.

The material of the rolls must answer two requirements—for sizing and for final reduction of the middlings and dust. The surface of the rolls should be as dense and free from cavities as possible, for otherwise it would be impossible to act upon every particle of the material during the short distance through which it passes. Some of the particles would enter the cavities and pass between the rolls without being acted upon. A requisite for corrugated rolls is that they may be susceptible to the action of proper tools, and at the same time sufficiently hard to render the cutting-edge as durable as possible. A good chilled casting answers these important requirements in the highest degree.

Chilled iron is a variety of cast-iron, having a surface as hard as glass. When molten cast-iron is poured into a mold of good conducting materials, such as iron, steel, etc., all of the faces of the casting which were in direct contact with the mold will form an exceedingly hard, white layer. This is produced by the rapid cooling, which does not give the carbon contained in the iron sufficient time to separate as graphite, but keeps it in chemical combination. The interior of the casting, and the surfaces which were in contact with portions of the mold, made of a poorly conducting material, will assume a deep gray color and the softness of ordinary cast-iron. Such casts are called chilled castings.

The chilled rolls which are to be used in mills are cast in bored cast-iron cylinders. They are consequently hardened throughout their surface. Toward the interior they gradually become softer, and can easily be bored. In theory the making of a chilled roll appears to be a very simple matter, but in practice it is not so, for the manufacture of a good and useful chilled casting is dependent upon the chemical composition of the iron used, the temperature and thickness of the molds and numerous other conditions.

Good chilled rolls have an excellent uniform hardness, and to this is due their advantage over the rolls made from any other material. They are also of extraordinary durability and solidity, and are very well adapted for milling purposes. One of the most favorable results for the chilled rolls, as compared with stones, is a surprisingly minute amount of wear, which in smooth chilled rolls may be considered equal to zero. Even in the case of corrugated rolls, sharpening only becomes necessary at the end of several months, and, in some cases, not for years.—*Translated from the German for the Miller's Journal.*

## FAVORABLE TO MILLSTONES.

A Dillsborough, Indiana, correspondent writes us as follows:

"I have heard of and read about the roller system of milling and its superiority over milling with millstones that I feel like taking exceptions, especially when some of the roller mill agents come in and talk as if there was never any flour made on millstones that was fit to be eaten. Now I desire to say in behalf of millstones, that I am making flour on millstones that will stand the test with that made on the best roller mills in the country, and they have the advantage also in the matter of more thorough wheat cleaning and middlings purifying machinery for the same amount of work. The trouble has been that millstones have not been handled properly. I am fully satisfied from what I know that as good work can be done with stones and that with less machinery and capital invested. Still I will say, that for cleaning bran and crushing germ middlings I think the rolls are excellent."

BURRSTONE MILLER.

## NONSENSE.

"A little nonsense now and then,  
Is relished by the best of men."

A POLICEMAN leaned over the area-railing, and addressing Bridget, who was at that moment engaged in shifting an ash-barrel, observed: "Bridget, my darlint, the lought

av yer oyes makes the dawn same loike darkness." "Thim's the very wurruds that yer sapayrior, the Sargent, spoke to me. I suppoaz it's a part of the discipline of the fource."

"I'd hate to be in your shoes," said a woman, as she was quarreling with a neighbor. "You couldn't get into them," sarcastically replied the neighbor.

A VERMONT farmer wanted to get a couple of shingles tacked over a leaky place in the roof, but no one dared to try it, the roof was so steep. That very day the farmer's daughter came home from boarding-school and did the job before she sat down to supper. She said she was used to crawling over steep roofs. It was the only way the girls could get out after 9 o'clock.

"MOTHER, is it right for a person to try to make a person believe something what he doesn't believe?" "No, son." "Well, then, why do you try to make me believe it's right when any one rings the door-bell to go and peep out the winder and see who it is, and if it's sich and sich a one to tell her you're not in?" "Well, that's a different thing." "Oh, yes; you always say 'that's a different thing' when you get beat."

BRIDGET was sent to the door. On the return of the servant the master of the house said, "Well, Bridget, who was it?" Bridget replied, with all the unsuspecting sincerity of her race, "It was a gentleman, sir, looking for the wrong house."

AN agent who had sold a Dutchman some goods was to deliver them at his residence. The German gave him the following directions: "You shoost goes behind de church; den you turns up for a vile till you come to von house mit a big hog in der yard. Dot's me."

A BOY who had always refused to eat oat meal, in spite of his mother's urgings that it was a strengthening diet, suddenly surprised her one morning by eating a liberal plateful and calling for more. Upon his mother asking for an explanation, he replied: "I am bound to eat oat-meal till I am strong enough to whip Johnny Scott."

A SHREWD countryman was in New York the other day, gawky, uncouth and innocent enough in appearance, but in reality with his eye-teeth cut. Passing up Chatham street he was continually encountered with importunities to buy. From almost every store some one rushed out, in accordance with the annoying custom of that street, to seize upon and try to force him to purchase. At last one dirty-looking fellow caught him by the arm, and clamorously urged him to become a customer.

"Have you any shirts?" inquired the countryman, with a very innocent look.

"A splendid assortment, sir; step in, sir; every price, sir, and every style; the cheapest in the street, sir."

"Are they clean?"

"To be sure, sir. Step in, sir."

"Then," resumed the countryman, with perfect gravity, "put on one, for you need it."

The rage of the shop keeper may be imagined as the countryman, turning upon his heel, quietly pursued his way.

A KANSAS mule standing near a magazine of giant powder when it exploded was hurled end over end seventy-five feet to the bottom of the dump on which he stood. When the smoke cleared away he stood quietly picking the bunch grass, not in the least disturbed. He had lifted people like that himself, and knew how it was done.

"It was flaxseed that ruined me," he said, as he crossed his legs and heaved a sigh from the bottom of his soul.

"You tried to make a corner, eh?"

"Oh, no. I was simply calculating on the natural and average demand in the Middle States."

"And did the price go down?"

"Yes, 15 cents per bushel."

"What was the cause?"

"Almost total lack of boils in the States of Ohio, Indiana, Michigan and Illinois, that season," he calmly replied. "The number of boils dropped from 750,000 to three or four old carbuncles and a felon or two, and I'll be hanged if even those weren't poulticed with cornmeal to save expense."—*Wall Street News.*

GREAT FOLKS.—A pitman, who had been at a prayer meeting in a village not far from Durham, on his way home heard of the death of a friend, and remarked to his wife—"Ey, lass, he's gyen, an' by this time he's syafe in Beelzebubs bosom." "Jack, hinny," responded the wife, "hesn't thoo made a mistyk; dissent thoo mean Abraham's bosom?" "Why, mebbes aa de," responded Jack, "but thoo knaas aa nivvor read the pyapors, and thoo knaas aall them greet foaks!"

A YOUNG Virginia lad of three summers, after having feasted on rich fruit-cake from New Year's table, was warned to touch no more, as it would make him sick. The little fellow, pleading hard for just another slice,

dropped his hand to his side, and for a moment he sat as if in deep reflection. Awakening from his reverie, he said: "Mamma, just give me another slice and then send for the doctor."

OLD lady to professional street Arab: "Do you go to Sunday-school, little boy?" "Naa." "Are you a Protestant?" "Naa." "A Catholic?" "Naa." "What are you then?" "Merican."

MARY ELLEN CHASE says there will be three women to one man in heaven. We know who the man is likely to be, but for the life of us we can't place the three women.—*Peoria Transcript.*

A CLOSE observer tells us that when you see a man operating with a needle and thread on a trouser button you can easily tell whether he is single or married. If he uses a thimble he is married, but if he pushes the end of the needle against the wall and pulls it through the button with his teeth, you may safely bet that he is single.

A TESTY old man went into the cellar, with a handsome mug, to draw some cider. He stumbled, fell heavily over a box, and hurt himself badly. His wife, more anxious for the handsome mug than for him, called out: "My dear, have you broken the mug?"

Smarting with pain he yelled back: "No; but I will!" and immediately dashed it against the wall.

CLASS IN HISTORY.—Teacher: "Who was the first man?" First Boy: "George Washington." Teacher: "Next." Second Boy: "Adam." First Boy (indignantly): "I didn't know you meant foreigners."

A LITTLE girl in town was trying to tell her mother how beautifully a certain lady could trill in singing, and exclaimed: "O, mamma, you ought to hear her gargle, she does it so sweetly."

"You have asked to see me?" said an employer to his clerk. "Yes, sir." "What is wanted?" "I wish to make a claim, which I doubt not your sense of justice will accept." "Very well, what is it?" "I do the same work as Z, and I am paid five dollars a month less than he. Is that fair?" "No, you are perfectly right. I will at once reduce Z's salary five dollars!"

"Did you see that sign, mister, coming up the lane?" "I saw a sign, my friend, but it was stationary—it didn't seem to be coming up the lane." "Smart, haint ye? Well, what did that sign say?" "Nothing that I heard; it was perfectly dumb when I passed it." "Hum! Gittin' cuter all the time, been't yer. Try again! What did yer read on that sign?" "Read on it? Why, 'beware of the dog.'" "Yes, but ye haint bewarin' much, be ye?" "Well, my friend, I didn't know I'd encounter the dog till you growled."—*Yonkers Gazette.*

HIS FAITH IN LIQUOR.—"I am never so sure of coming out all right as when I'm drunk," said a nervous little man with fierce whiskers and a limp. He brushed the crumbs of a free lunch off his shirt bosom and leaned up against the bar in an easy attitude.

"Last week," resumed the little man, snapping his eyelids together reflectively, "I spent three days in getting fuller'n a goat, and I got that way. I had made up my mind to do it. By that time I had distributed about \$300 buying drinks in fifty different saloons, and I didn't have a cent left. Now I live in Evanston," said the little man, glaring around him sternly, "and I wanted to go home and get some more money to buy more drinks with. I saw that I had written on one of my cuffs: 'Deposited \$30,' but where I had deposited it I had not the slightest idea. I got on a Northwestern passenger train, and told the conductor just how I was fixed. He had probably been drunk himself, for he said I might ride home with him for nothing. I went to sleep in the seat. When I woke up I was half sober, and was in Milwaukee. I explained to the conductor that I was further away from home than ever. He put me on board another train, and I went to sleep again. Next time I woke up I was sober, and was in Chicago. I felt like a total wreck. I struck the first stranger I met for fifty cents to buy a drink. He gave it to me without a word. I went into a saloon which I didn't remember ever having seen before, and called for a whiskey sour. I laid my fifty cents on the bar.

"Never mind," said the barkeeper, "I'll take it out of the \$30 you left with me the other day." Then he took an envelope out of the drawer and handed it to me. It had my money in it. I was so pleased with my luck that I got drunk on it, and before night I didn't have a nickel. When I got sober, next day, I was in Evanston, but I don't know yet how I got there."

A SOUTHBRIDGE teacher received the following excuse recently: "Tomie stade home cuz he hed no close and thats excuz enuff god nose."



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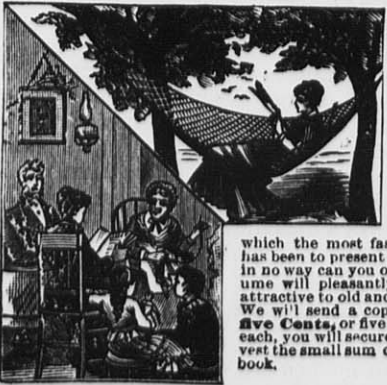


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be place for a child to begin this dictionary branch of his education is at home. If this fact were duly appreciated, the average intelligence of the nation would be doubled in five years by a revolution of our present deplorable process of memorizing abstract and meaningless words.

When a word that is not understood is first heard or seen is the time to "study it up" by the aid of a reliable dictionary which should be ever at hand. By thus taking one word at a time while it is associated with the object or the thought which it is designed to convey, it may be really learned as well as memorized, almost without effort; while to undertake to memorize a dozen or fifty such words in a lesson at school would result in the accumulation of useless rubbish rather than available knowledge. Not only does the accumulation of this useless rubbish destroy the child's ambition to learn and his thirst for knowledge, but it often shatters his constitution.

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- 14.—Insolvency, Assignment, and Homestead Laws of the different States of the Union.
- 15.—Rate of Mortality, and the average number of years any man "expect" to live after any age, from one year old up to the age of 100 years.
- 16.—Debts, Revenues, Expenditures, Imports and Exports of the various Nations of the World.
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- 18.—National Debts, Expenditures and Commerce of Nations—Amount for each inhabitant.
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aid of such a book as the New American Dictionary, if it had been supplied to them in early life. Of course it is only by producing it for the million that it is afforded at the nominal price of \$1, postpaid; or five copies postpaid for only \$4. Ask 4 of your friends to buy one each and thus get your own book free, all postpaid and warranted to give satisfaction.

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## THAT QUEEN.

The Judge was a Christian and played on the square,  
But he figured the cards pretty close;  
He could call off your hand every time to a pair,  
And lay down a "full" when he chose.

The Colonel could play a more difficult game—  
I don't mean to say he would cheat,  
But he held the top card when the big betting came,  
And some hands that couldn't be beat.

Coming home from Chicago, the two chanced to  
meet—

They were very old friends—on the cars;  
And as neither the other at poker could beat,  
They played euchre, five points, for cigars.

The cards ran along pretty evenly, too,  
Till the Judge turned a moment his head,  
When the Colonel, in shuffling, slipped the deck  
through,  
And the Judge cut a cold one instead.

'Twas euchre, of course, but the Judge was amazed  
When he lifted four kings in a lump;  
But the Colonel, not seeming a particle dazed,  
Turned up a red queen for a trump.

"You say, do you pass, Judge?" the Colonel called  
out;

"Look here," said the limb of the law,  
"I've mighty queer cards; if you're in for a bout,  
We'll play this one hand out at draw."

The Colonel considered, and wriggled his neck—  
"I, too, have a very odd hand;  
If you'll give me that queen from the top of the deck,  
We'll play out the cards as they stand."

"Agreed," said the Judge, for he saw at a glance  
The Colonel had one of two things—  
A full, or four queens, and he hadn't a chance  
To rake down the pot from four kings.

The Judge chipped with fifty; the Colonel came back;  
The Judge answered him with a raise;  
Of the bets the two made I could never get track,  
But they piled up, like gals in a chaise.

At last says the Judge, "Here, I'm hunting no more—  
Four kings; reach us over that pot!"

"Hold on," says the Colonel, "I, too, have found  
four,  
And they're four little aces I've got."

The Judge took the cards and looked over them well,  
Fetched a breath from his trousers' waistband—  
"Well, what I'd like to know is, what in hell—  
The queen had to do with that hand."

## WHEAT-GROWING IN INDIA.

A second or supplementary report on the cultivation of wheat has been made by the Government of India in response to further inquiries of the Home Government touching the area of wheat culture, the nature of the soils, irrigation, growth per acre, cost per bushel, etc. The answers to these inquiries are taken from reports made by the local governments which have made special investigations for the purpose.

It appears, from the best information attainable, that the area under wheat cultivation in British India is about 20,000,000 acres, yielding between 175,000,000 and 200,000,000 bushels, and in the native provinces 6,000,000 acres, yielding about 68,000,000 bushels. The average yield is, therefore, not far from ten bushels per acre, although there are, of course, wide differences in the yield, depending upon fertility, carefulness of cultivation, rainfall, etc. The quantity available for export is estimated at one-quarter of the whole "in a good year." But a good year is defined to be one in which the yield is up to the average, and in which the price is satisfactory. If wheat brings a good price, the cultivator will sell it and live on millet and other cheaper kinds of food. If the price in the British market is unsatisfactory, India will consume her own crop, whether the quantity be great or small. At 43 shillings per quarter the whole surplus of India would be exported. At the present price (39 shillings for English wheat and 33 to 36 shillings for Indian), there is no profit to the exporter. The cost of producing wheat in India is not easy to ascertain, since the living of the cultivator and his family has to be taken into account, and this is a widely varying amount, and most difficult to reduce to terms of money. The closest calculation that can be made shows the cost in Northern India to be 1 shilling 6 pence per bushel, or 12 shillings per quarter inclusive of land rent, which stands in the place of government taxes. This is the cost from the seeding to the threshing, and embraces no charge for moving the wheat any distance whatever.

Twelve shillings per quarter is equal to 37 cents per bushel. This being the supposed cost of production to the cultivator, it is important to know what profit the Indian ryot can obtain from an acre of ground. This depends upon the selling price at the nearest interior distributing point, which was, at the time of making the report, 18 shillings 6 pence per quarter, or, say 56 cents per bushel.

The profit to the cultivator would be from \$1 to \$2.50 per acre, according to yield. But the price has fallen since the report was made as much as 10 cents per bushel, so that the profit is reduced as much as \$1 per acre. The exportation to Europe has been checked. The receipts of Indian wheat in England in the month of March, 1884, fell off 20 per cent. as compared with March, 1883. From America, taking Atlantic and Pacific ports together, they declined in about the same ratio,

the March imports reported by the British Board of Trade being as follows:

	1883.	1884.
From India, cwt.	445,414	354,518
America, Atlantic	1,055,752	712,707
America, Pacific	1,221,506	1,267,243

The conclusion to be derived from the report is, that no encouragement is offered to the production of wheat in India for export, at the present prices in the European markets. Sir James Caird adds another fact of the highest importance, obtained by his own observations, viz.: that the population of India is increasing so rapidly that she will, within two years, consume her entire wheat crop and have no surplus for export. This is not altogether a surprising statement when we remember that the existing population of the country exceeds 200,000,000, and that, as the prosperity of the people advances, not only does the population increase, but a better quality of food is demanded. A very moderate addition to the material wealth of the country would lead to a much larger consumption of wheat at home, and an existing surplus of 60,000,000 bushels might be very readily disposed of among so vast a population, without any actual increase of their numbers. This solution of the problem of Indian competition with American wheat was pointed out by the *Evening Post* some months ago, but we did not anticipate that it would become effective within so short a time as Sir James Caird predicts.

The testimony of Sir James Caird (which was given before a Parliamentary Committee on Indian Railways), confirms the inference drawn from the government report on wheat culture, that the extension of wheat acreage and product in India is dependent upon the price which can be obtained for it, and that at present prices there will be no extension and no considerable exportation.

In short, the opinion of the first authority in England, or in the world, on this subject, tends to belittle rather than to magnify the wheat exporting capabilities of India. The unusual exportation of the past season was, in his opinion, due to two exceptional harvests following after a year of famine. He looked upon South Australia as a more promising source of regular supplies for the United Kingdom than India. American wheat was better than Indian, and would command a higher price, but if wheat could be produced in India at 12 shillings per quarter, it would find a large sale in European markets.

The conclusion to be drawn from these investigations is, that the present low price of wheat is due rather to the good crops of Western Europe, including that of England in 1883, than to those of India; that the capabilities of the latter country have been exaggerated, and that if America is to have a formidable rival in wheat-growing, it will be found in Russia, Australia, or the Argentine Republic, rather than in India.—*N. Y. Evening Post*.

**MALT OR DUST EXPLOSIONS.**—Her Baehr, Lightning Inspector of Dresden, contributes some notes on the above subject to the *Norddeutsche Brauer Zeitung*, which, in view of the recent explosion of malt dust at Bass' brewery, will perhaps be of more interest to our readers. The writer states that the leather mill bands are known to be a source of electricity, and from experiments he has lately conducted with the belts used for producing the power for the electric lighting of the Royal Theatre at Dresden, he is convinced that the electricity produced by these belts may now and then be the cause of the spontaneous firing of malt or flour dust, because in almost every case the electricity is absorbed in the various parts of the machinery. He recommends that care should be taken to see that no metal part is connected with the driving belt, if there are dangerous materials near, such as malt or flour dust.

## NEWS.

Letters dated April 24, report that a famine is raging in Milparinka district, Australia.

Muirhead, Gray & Gartley, oatmeal millers, of London, Ont., have been burned out—partly insured.

J. E. Hardeman & Son, Fair Play, Ga., have ordered rolls from the Case Mfg. Co., Columbus, Ohio.

The Case Mfg. Co., Columbus, Ohio, have lately furnished Click & Miller, Dayton, O., with rolls and purifiers.

D. B. Stewart, Athens, Ohio, has lately started up his mill on the "Case" system, with satisfactory results.

Thos. Bradford & Co., Cincinnati, Ohio, have ordered one "Little Giant" break machine, from the Case Mfg. Co.

A stock company is being organized at Brandon, Manitoba, for the purpose of erecting a flour-mill and elevator.

The Case Mfg. Co., Columbus, Ohio, have an order from Feldman & Holdefer, Kahoka, Mo., for rolls, purifiers, etc.

Parkin & Co., Hellerville, Ill., are putting in a No. 3 single purifier, furnished by the Case Mfg. Co., of Columbus, Ohio.

The Case Mfg. Co., Columbus, O., have an order

from Henry Reinhart, Wall Lake, Iowa, for one No. 1 double purifier.

Crow & Williams, Oakland City, Ind., are putting in a No. 1 single purifier, furnished by the Case Mfg. Co., Columbus, O.

J. W. Cleaver, Caro, Mich., has ordered two pairs of rolls with patent automatic feed, from the Case Mfg. Co., Columbus, O.

A receiver has been appointed to take charge of the business of Endsow & Heabler, millers, at New Washington, O.

The Columbia Mill, at Cleveland, O., was damaged by fire to the extent of \$25,000, May 6. There was an insurance of \$10,000.

Fairbanks & Lowing, operating a saw and grist-mill at Fillmore Centre, Mich., recently suffered a loss by fire of \$5,000.

The Case Mfg. Co., Columbus, Ohio, have an order from D. Lowrie & Son, Rochester Depot, Ohio, for one No. 2 single purifier.

The Case Mfg. Co., Columbus, Ohio, have an order from I. S. Calkins, Elk Creek, Wis., for one "Little Giant" break machine.

The Case Mfg. Co., Columbus, O., are furnishing A. Comingo, Pleasant Hill, Mo., with breaks, rolls, purifiers, scalpels, etc.

B. E. Hickok & Co., millers, of Oakland, Cal., have dissolved partnership, and the style is changed to Hickok, Schroeder & Co.

The Case Mfg. Co., Columbus, O., have an order from J. C. Scharman, Rock Mills, Ala., for breaks, rolls, purifiers, scalpels, etc.

The Case Mfg. Co., Columbus, O., have lately shipped Morland, Hull & Co., Dublin, Mo., three pairs of rolls with patent automatic feed.

The Case Mfg. Co., Columbus, Ohio, have an order through their agents, W. E. Catlin & Co., Chicago, for one "Little Giant" break machine.

The Case Mfg. Co., Columbus, O., are furnishing S. A. Keeley, Lewisville, Tex., with breaks, rolls, purifiers, scalpels, centrifugal reels, etc.

W. C. Murphy was caught in the machinery of the elevator of H. L. Spencer & Co., at Oskaloosa, Ia., a few days since, and fatally injured.

The Case Mfg. Co., Columbus, Ohio, have just received an order from Morrow Bros., Prospect, Ohio, for one 8-foot Improved Centrifugal Reel.

Crissman & Burdell, Denver, Col., have lately ordered two pairs of rolls with patent automatic feed, one centrifugal reel and other machinery.

The Case Mfg. Co., Columbus, Ohio, have lately received an order from John Cooper, Cochran's Mill, Pa., for breaks, rolls and centrifugal reels.

The Case Mfg. Co., Columbus, O., have lately received an additional order from Thos. Robinson & Son, Rochdale, England, for five sets of rolls.

Messrs. Walker & Saunders, of Richmond, Va., proprietors of the City Mills, have recently sold out to C. E. Buek, who will continue the business.

The Case Mfg. Co., Columbus, O., have an order from the Sac City Roller Mill Co., Sac City, Iowa, for one pair of rolls with patent automatic feed.

The Williams & Orton Mfg. Co., Sterling, Ill., have ordered three pairs of rolls from the Case Mfg. Co., Columbus, O., to be shipped to Kansas City, Mo.

The Case Mfg. Co., Columbus, O., are furnishing Hales & Ault, Elizabeth, Pa., with a line of breaks, rolls, purifiers, scalpels, centrifugal reels, etc.

The Case Mfg. Co., Columbus, O., have lately shipped W. P. Hambaugh, Ringgold, Tenn., two additional pairs of rolls with patent automatic feed.

The Case Mfg. Co., Columbus, Ohio, have lately had an order from P. E. Keron, Pigeon Falls, Wis., for one patent automatic feed box, for his Double Smith Purifier.

The Case Mfg. Co., Columbus, Ohio, have lately shipped two pairs of rolls, with patent automatic feed to the W. P. Huffman Implement Co., Fort Worth, Texas.

The Case Mfg. Co., Columbus, O., have lately furnished Wm. Craig, New Castle, Ind., with one "Little Giant" break machine and scalper making three separations.

Eli Atherholt, Brookfield, Pa., is making some changes in his mill, and has ordered two pairs of rolls with patent automatic feed from the Case Mfg. Co., Columbus, O.

The Case Mfg. Co., Columbus, O., have an order from J. M. & H. C. Allen, Grafton, Ill., for one additional No. 1 double purifier, to replace one of another manufacture.

The Case Mfg. Co., Columbus, O., have been awarded the contract of B. S. Edwards & Co., Chetopa, Kan., for a full line of breaks, rolls, purifiers, scalpels, etc., for a full gradual reduction mill, on the "Case" system.

Dr. J. H. McGrew, of Shelbyville, Tenn., is remodeling his mill to the roller system, with machinery and plans furnished by Nurdyke & Marmon Co., of Indianapolis, Ind.

Henry Schnur, Mt. Vernon, Ind., is putting in a three-roller break machine and a scalping reel making three separations, furnished by the Case Mfg. Co., Columbus, O.

D. R. Raymond, Osceola, Ia., has placed an order for a complete milling outfit, including ten pairs Allis rolls, in Gray's Noiseless Belt Frames, to go to Huron, D. T.

The Cummer Engine Co. have just shipped an 89 horse-power engine to Wright & Baker, Minneapolis, Minn., and one of 414 horse-power to the Paine Lumber Co., Oshkosh, Wis.

The Richmond Mfg. Co., of Lockport, N. Y., had a large chimney blown down in a wind storm a few days since, its boiler-house roof being crushed in by the chimney falling on it.

C. W. Roop, of Tazewell, Tenn., is putting up a mill outfit and engine for a milling firm of that county, and the machinery was made by Nurdyke & Marmon Co., of Indianapolis, Ind.

An improved millstone flouring outfit was recently shipped from the manufactory of Nurdyke & Marmon Co., of Indianapolis, Ind., to Don Francisco Carbone, of Las Curcas, Mexico.

L. S. Brott & Bro., of Mayfield, O., are building a 50-barrel roller mill, driven by steam, and their entire outfit is under construction at the works of Nurdyke & Marmon Co., of Indianapolis, Ind.

Messrs. J. M. Boyd & Son, Hillsboro, Ohio, have contracted with Messrs. Allis & Co. for the entire outfit for their new mill, including fourteen pairs Allis rolls in Gray's noiseless belt frames, 12 x 36

Reynolds' Corliss engine, etc. When completed, they will have a very good mill.

The Great Western Mfg. Co., Leavenworth, Kan., have ordered six pairs of rolls with patent automatic feed, to be shipped to W. L. Parsons, Neosho Falls, Kan., from the Case Mfg. Co., Columbus, O.

Jonas Fender & Bro., Millersburg, Ill., have contracted with Messrs. Allis & Co. for a four break machine, four pairs Allis rolls, in Gray's Noiseless Belt Frames, and complete outfit for their mill.

Planter & McCullough, Walnut Kan., are putting in one "Little Giant" break machine and scalper combined, and one Improved Case Centrifugal Reel, furnished by the Case Mfg. Co., Columbus, O.

Messrs. Durrah Bros. & Co., Big Rapids, Mich., are putting in a complete roller outfit, and will use twelve pairs Allis rolls, in Gray's Noiseless Belt Frames. Messrs. Allis & Co. are furnishing the complete outfit.

A flouring-mill stock company has been organized at Necedah, Wis., for the purpose of rebuilding the Model Mill. The officers are, E. S. Miner, president; G. A. Potter, treasurer, and W. L. Fuller, secretary.

The manufacturers of mill machinery are having quite a boom in business at present. Nurdyke & Marmon Co., of Indianapolis, Ind., with a force of 400 men, started upon their usual night run April 15.

The Case Mfg. Co., Columbus, Ohio, have recently shipped J. K. Mullen & Co., Denver, Col., two No. 1 Double Purifiers. This makes ten Double "Case" Purifiers that these gentlemen now have in their mill.

The foreign trade of Nurdyke & Marmon Co., of Indianapolis, Ind., was increased last month by an order from Pedro Enquiaca, successor of Hacienda de la Parral, Mexico, for a large water-power flouring outfit.

A. F. Ordway & Son, Beaver Dam, Wis., have lately ordered one "Little Giant" break machine and scalper and one pair of rolls with patent automatic feed, from the Case Mfg. Co., Columbus, to be shipped to Hanibal, Wis.

Messrs. Geo. Crossley & Son, of Princeton, Ill., have contracted with Messrs. Allis & Co. for a No. 2 four-break reduction machine, a Gray's noiseless belt roller mill, and machinery to equip his mill on the roller system.

Geo. V. Hecker & Co., New York City, eighteen pairs porcelain rolls in Gray's noiseless belt frames. This firm have experimented with all the different kinds of rolls and have finally decided in favor of the porcelain rolls.

Messrs. LeGrand, Quarry Co., Quarry, Iowa, have contracted with Messrs. Allis & Co. for the outfit necessary to remodel their mill to the roller system, and will use eleven pairs Allis rolls in Gray's noiseless belt frames.

Messrs. McAffrey & Co., Augusta, Wis., have contracted with Messrs. Allis & Co. for a No. 2 four-break reduction machine, four pairs Allis rolls in Gray's noiseless belt frames, and machinery to remodel the mill to the roller system.

Messrs. Johnson & Denton, Elm Mills, Kas., visited Milwaukee recently and placed an order with Allis & Co. for a complete outfit for their mill, including a four-break reduction machine and four pairs of Allis rolls in Gray's noiseless belt frames.

The roller system for grinding corn and rye is being introduced into the 28,000 gallons daily capacity distillery of the Enterprise Distillery Co., of Pekin, Ill., by Nurdyke & Marmon Co., of Indianapolis, who make all the machinery.

The Cummer Engine Co. have just shipped one of their "Ballantine" ice and refrigerating machines to Albert Ziegele & Co., Buffalo, N. Y., and expect to be able to ship three more of these machines, of large size, within the next two weeks.

H. O. Hambaugh, New Providence, Tenn., has concluded not to be behind the times, and has placed his order with the Case Mfg. Co., Columbus, O., for a complete outfit of breaks, rolls, purifiers, scalpels, centrifugals, etc., for a full gradual reduction mill, on the Case system.

E. F. Butler, of Woodbine, Ia., who was in charge of a mill there, while attempting to examine some machinery, had a silk handkerchief which encircled his neck, caught between a belt and a wheel, dragging him and strangling him to death. Mr. Butler was highly respected, and leaves a family.

Negotiations are in progress that may result in the erection of a 1,000-barrel steam mill in Toledo, O., during the present year. Parties have been there looking over the ground. Toledo's advantages as a wheat market are great. There is always an abundance of wheat in store, and the miller can easily have his needs supplied there.

The Case Mfg. Co., Columbus, Ohio, have lately been awarded the contract of W. A. & R. P. Crowder, Hopewell Springs, Tenn., for a complete outfit of breaks, rolls, purifiers, centrifugals, scalpels, etc. Nine pairs of rolls in connection with the three-roller break machine will be used in connection with the purifiers, centrifugals, etc.

The Kauffman Milling Co., of St. Louis, have closed contract with Messrs. Allis & Co. to increase the capacity of the "President Mills," at Bethalto, Ill., from 750 bbls. to 1100 bbls. daily capacity. This mill was built last year by Messrs. Allis & Co., and has done so well that they will make the present increase in capacity.

The importance of the vibratory feed on rolls and purifiers is illustrated from the fact that the Case Mfg. Co., Columbus, O., have five sets of rolls, both single and double, of other well-known manufacturers, in their shop, upon which they are placing their patent automatic feed the purchaser of the rolls paying freight both ways, besides paying the Case Company a good price for placing their valuable attachments on them.

The Case Mfg. Co., Columbus, O., have been awarded the contract of Moses Hartman, Sacramento, Pa., for a complete outfit of breaks, rolls, purifiers, scalpels, centrifugal reels, etc., for a full gradual reduction mill, on the "Case" system. Ten sets of rolls will be used in connection with the "Case" three-roller break machine, which will be used for first and second break, purifiers, centrifugals, etc.

Among those who are adding the late improvements to their mills, may be mentioned: Quante & Bro., Metropolis, Ill.; O. Furnas, Edinburgh, Ind.; E. M. Beach, Osborne, Kan.; J. B. Mills, Camargo, Ill.; Rabbeth & Brownell, Hopkinsville, Ky.; J. M. Boyd & Son, Hillsboro, O.; W. H. Patterson, Smithville, Mo.; J. Taylor & Bro., Memphis, Ind.; Wm. Parkhill, Vanderbilt, Pa.; Solomon Keiser, Scottsdale, Pa.; J. F. Sisson, Chamberlain, Dak.; Colton Bros.,



Bellefontaine, O.; D. Gratz, Montpelier, O.; J. M. Diehl's Sons, Scribner, Neb.; A. C. Burnett, Maquon, Ill.; W. H. Singer, Neogo, Ill. All purchasing their outfits of Nordyke & Marmon Co., of Indianapolis, Ind.

J. A. Nogle's Roller Mill, at Lodi, O., was destroyed by fire some time ago. Mr. Nogle has purchased a new site and will build a new mill, putting in a full line of breaks, rolls, purifiers, scalpers, etc., furnished by the Case Mfg. Co., Columbus, O. He had been running a line of machinery from this Company in his former mill when it was destroyed, and when he decided to rebuild he did not hesitate to adopt the line of machinery that had given him such good satisfaction in his old mill.

Among some of the Cummer Engine Co.'s more recent orders for engines, are the following: A 55 horse-power for Porter & Worrell, Cisco, Texas; one of 67 horse-power for Stults & Kile, Orwell, Ohio; a 55 horse-power, with outfit complete, for the Ft. Wayne Jenney Electric Light Co., Ft. Wayne, Ind.; one of 105 horse-power for Lorin Mitchell, Wausau, Wis.; a 75 horse-power, complete outfit, for Cheesman & Dreisbach, Reno, Kan.; and a 137 horse-power engine for A. L. Johnson & Co., Muncie, Ind.

The Cummer Engine Co. have recently added two 5' lathes and a large steam hammer to their fine line of first-class tools, and have placed their order for a boring mill with a capacity to turn a pulley 20' in diameter by 5' face. This will probably be the largest machine of the kind in the Western States. The Cummer Engine Works, with this added machinery, coupled with increased facilities for handling, will be the most complete and best equipped shops in this country for automatic engine building.

Another proof of the superiority of the Cummer Automatic Engine, lies in the fact that the Pennsylvania Railroad Co. have just placed their order with the Cummer Engine Co., of Cleveland, O.; and this was done after a thorough investigation of the various automatic engines by their best experts, who visited the different manufactories and examined the engines in operation and in course of construction. The Pennsylvania Railroad Co. thoroughly investigated the merits of everything they purchase, even down to the least. Nothing but the very best of

everything enters into their consideration and adoption. Therefore, the importance of having nothing but the best automatic engines caused that company to have the engine business thoroughly investigated by two independent set of experts, and the fact that both set reported in favor of the Cummer Engine, is quite a feather for the Cummer Engine Co.'s cap, and one that they may well feel proud of.

The following millers have lately bought the well-known Cone-Shape Becker Wheat Brush, made by the Eureka Manufacturing Co., of Rock Falls, Ill.: A. Coors, Golden, Col.; Nicholas & Roberson, Crawford, Texas; H. A. Kilgour, Kalamazoo, Mich.; L. B. Weisenburg, Georgetown, Ky.; George Mader, Winchester, Ill.; John Spencer, Barrington, Ill.; Crouch, Whitaker & Co., Bell Buckle, Tenn.; Brown & Chatburn, Hastings, Neb.; Mountel, Borgers & Co., East St. Louis; Lock & Thornely, Swanville, Minn.; Baker, Cranze & Co., Wadsworth, O.

The following millers have put in Gray's Noiseless Belt Roller Mills, purchased from Messrs. Edw. P. Allis & Co., of the Reliance Works, Milwaukee: D. P. Barker, Sparta, Ill.; a Gray's Noiseless Belt Roller Mill; Sinkler, Davis & Co., Indianapolis, Ind.; a Gray's Noiseless Belt Roller Mill; C. A. Gambrill Mfg. Co., Baltimore, Md.; ten pairs Allis rolls, in Gray's Noiseless Belt frames; S. B. Pierson's Sons, Lawrence, Kas.; four pair porcelain rolls, in Gray's Noiseless Belt Frames; Wright Bros. & Co., Greenville, Mich.; a Gray's Noiseless Belt Roller Mill; Gehlen Bros., Lemars, Ia.; a Gray's Noiseless Belt Roller Mill; W. H. Ridenbaugh, Boise City Idaho Ter.; two pair porcelain rolls; Curtis & Disbrow, Hillsdale, Mich.; a Gray's Noiseless Belt Roller Mill, Gray's Centrifugal Reels, etc.; La Dorr & Co., Pleasant Hill, Ill.; three pairs Allis rolls, in Gray's Noiseless Belt Frames; Victoria Flour Mills Co., St. Louis, Mo.; a Gray's Noiseless Belt Roller Mill; J. H. Catron, Nebraska City, Neb.; a Gray's Noiseless Belt Roller Mill; Monieux Bros., Monroe, Ia.; a Gray's Noiseless Belt Roller Mill; Jno. Ream, Hagerstown, Md.; two pairs Allis rolls, in Gray's Noiseless Belt Roller Mill Frames; Jno. K. Mullen & Co., Denver, Col.; five pairs Allis rolls; Jno. W. Kauffman, St. Louis, Mo.; thirty-four pairs Allis rolls, in Gray's Noiseless Belt Frames, together with all the necessary machinery to increase

the capacity of the "President Mills," at Bethalto, Ill., from 800 barrels per 24 hours, to 1,200 barrels. Messrs. Allis & Co. built the "President Mills" last year, and it has given such good satisfaction that the mill will be doubled in capacity for the coming season to keep up with its orders. F. J. Schupp, Marshall, Mo., five pairs Allis rolls, in Gray's Noiseless Belt Frames.

The following orders have been placed with Messrs. Edw. P. Allis & Co., during the past month: Through Willford & Northway, Minneapolis, ten pairs Allis rolls, in Gray's Noiseless Belt Frames, for C. Albers, Wausau, Ill.; a Gray's Noiseless Belt Roller Mill for Messrs. Ackerman Bros., Young America, Minn.; B. F. Gump, Chicago, Ill.; a Gray's Noiseless Belt Roller Mill. Through Richmond City Mill Works, a Gray's Noiseless Belt Roller Mill for Jackson Bros., Downe, Kas. Through Simpson & Gault Mfg. Co., twelve pairs Allis rolls, in Gray's Noiseless Belt Frames, for J. W. Boyd & Co., Fulton, Ky., and a Gray's Noiseless Belt Roller Mill for another of their customers. Through Richards & Butler, Indianapolis, nine pairs Allis rolls, in Gray's Noiseless Belt Frame. Through the Slater Mill Co., Blanchester, O., twelve pairs Allis rolls, in Gray's Noiseless Belt Frames, for Messrs. Haldeman & Co., Bement, Ill. Through Wolf & Hamaker, Allentown, Pa., twelve pairs Allis' rolls, in Gray's Noiseless Belt Frames, for Messrs. J. L. Reigle & Son, Reiglesville, N. J. Through Great Western Mfg. Co., Leavenworth, sixteen pairs Allis rolls, in Gray's Noiseless Belt Frames. Through Milwaukee Dust Collector Co., Milwaukee, a Gray's Noiseless Belt Roller Mill, for J. G. Schaap, Grand Island, Neb.

**FOR SALE**—A half interest in the "Alderley" Mill, at Alderley, Wis., cheap and on easy terms. Unfailing water-power. Size of mill 30 by 50 feet, 3½ stories high. Six Bolts, four being new. Three run of stone with all the modern improvements except rolls. Everything in good order and good custom trade. Good reasons given for selling. Apply at once to J. C. MARSHALL, Alderley, Dodge Co., Wis.

**FOR SALE**—I want to sell a third interest in Mills in the state of Iowa. I will sell cheap for cash or give reasonable time for part payment. Good reasons given for selling. Address, R. H., care of UNITED STATES MILLER, Milwaukee, Wis.

**PARTNER WANTED**—A first-class Miller and Manufacturer in good locality wants a partner. Good ability, good references, and a small capital required. Address, A. H. B., New Glarus, Wis.

## DeLOACH WATER WHEELS



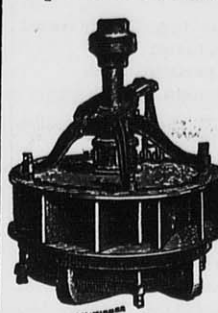
From 2-10 to 2,000 horse power. Simplest, most durable, best gate for holding the water, fully equal in percentage of power to any wheel made, and price places it in reach of all. Send for illustrated catalogue. A. A. DeLOACH & BRO., Manufacturers, also of Milling Machinery, Atlanta, Ga. Mention this paper.

## "TRIUMPH" CORN SHELDER

CAPACITY  
2000 U-SHELLS PER DAY.  
Shells wet or dry corn.  
CHEAPEST AND BEST SHELDER.  
PAIGE MANUF'G CO.,  
No. 12 Fourth St., Painesville, O.



## Improved + Walsh + Double + Turbine



This wheel has a perfect fitting cylinder gate and draft tube combined, and allows no water to escape when closed.

### POWER GUARANTEED

equal to any wheel on the market using equal amount of water. Address for particulars,

B. H. & J. SANFORD,  
Phoenix Iron Works,  
Sheboygan Falls, Wis.

## The GRAND HAVEN ROUTE

Is the Shortest, Quickest and Cheapest to the East.

## DETROIT, GRAND HAVEN & MILWAUKEE RAILWAY LINE.

**\$2.75 SAVED.**

Two Through Connections Daily.

Steamer CITY OF MILWAUKEE, Side wheel leaves her dock at 2:30 p. m., daily, (Sundays included,) and makes the run to Grand Haven in five hours, connecting with 9 p. m. through train for New York, Boston, and all Eastern Ports. This is strictly a Passenger Steamer and carries no freight. The night Steamers MICHIGAN and WISCONSIN leave same dock at 8:00 p. m. daily, except Saturdays, and connect with Steamboat Express at Grand Haven which makes the run across Michigan and Canada 450 miles by Daylight, and reaches New York the 2d day at 10:30 a. m.

N. B.—This entire fleet of PALACE IRON STEAMERS is now owned and controlled by the Railway Company. Ticket Office, No. 99 Wisconsin Street, and at dock foot of West Water Street, Milwaukee.

T. TANDY, Gen'l Freight & Pass. Ag't, DETROIT, MICH.  
B. C. MEDDAUGH, Western Pass. Ag't, MILWAUKEE, WIS.

## CHOICE BEVELLED EDGE FLOUR BRANDS

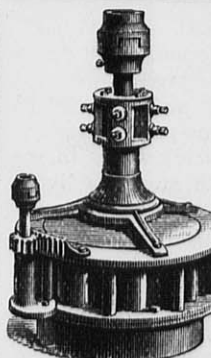
For two dollars and upwards. Also RUBBER STAMPS, BURNING BRANDS, SEALS, STEEL NAME STAMPS, LETTERS AND FIGURES, ETC. Orders promptly attended to. CHAS. H. CLARKE, Box 114 82 Wisconsin St., Milwaukee.

### NOTICE.

To the Members of the Missouri Millers' State Association:  
For various reasons it has been deemed best to hold the regular annual meeting of the Association this year at Chicago, in connection with the meeting of the National Association, which is set for June, exact date to be fixed later, and the Chairman of the Executive Committee instructs me to make this announcement to the members.

DAVID B. KIRK, Sec'y.

## Hopewell Turbine.



The most efficient and economical Water Wheel made, which cannot be broken or damaged by stones or timbers getting into it while running. Gives an average of 85 per cent. of power from half to full gate, and is fully warranted in every particular.

Manufactured at the Variety Iron Works, YORK, PA.

Send for Illustrated Catalogue and Price List.

Address, A. J. HOPEWELL, Edinburg, Va.

**WANTED**—A miller who has had 14 years experience with Burrs and Rolls desires a situation in a mill of from 100 to 200 barrels capacity. Have had charge of Roller Mills for the last 3 years and understands the system thoroughly. Am 30 years of age and married; can furnish references as to character and ability if desired. Address, HUNGARIAN, Box 883 Creston, Iowa.

**FOR SALE.** A good two-run Water-power Mill. Framedam, two dwellings, two barns, and 114 acres of land. Situated eight miles south of Ste Genevieve and ten miles west of St. Marys, five miles east of Cornwell Copper Mines. A BARGAIN. Write at once or call. Address, RIGDON BROS., Ste Genevieve, Mo.

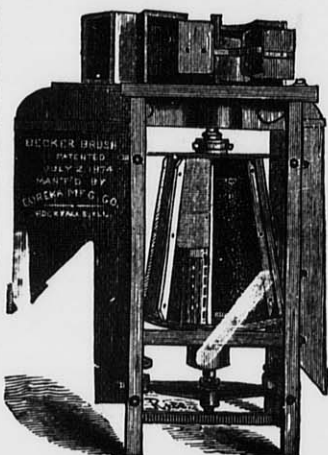
MILL OWNERS AND ENGINEERS will please take notice of the fact that the

## STANDARD BOILER PURGE

It is a perfect Boiler Cleaner in every respect and is guaranteed to remove ALL scale without foaming injury to the plates. We solicit your correspondence. Send for circular and directions.

Sold by

WESTERN SUPPLY CO., Milwaukee, Wis.



Mention this paper when you write.

## EUREKA MANUFACTURING CO.,

Manufacturers and Sole Proprietors of the

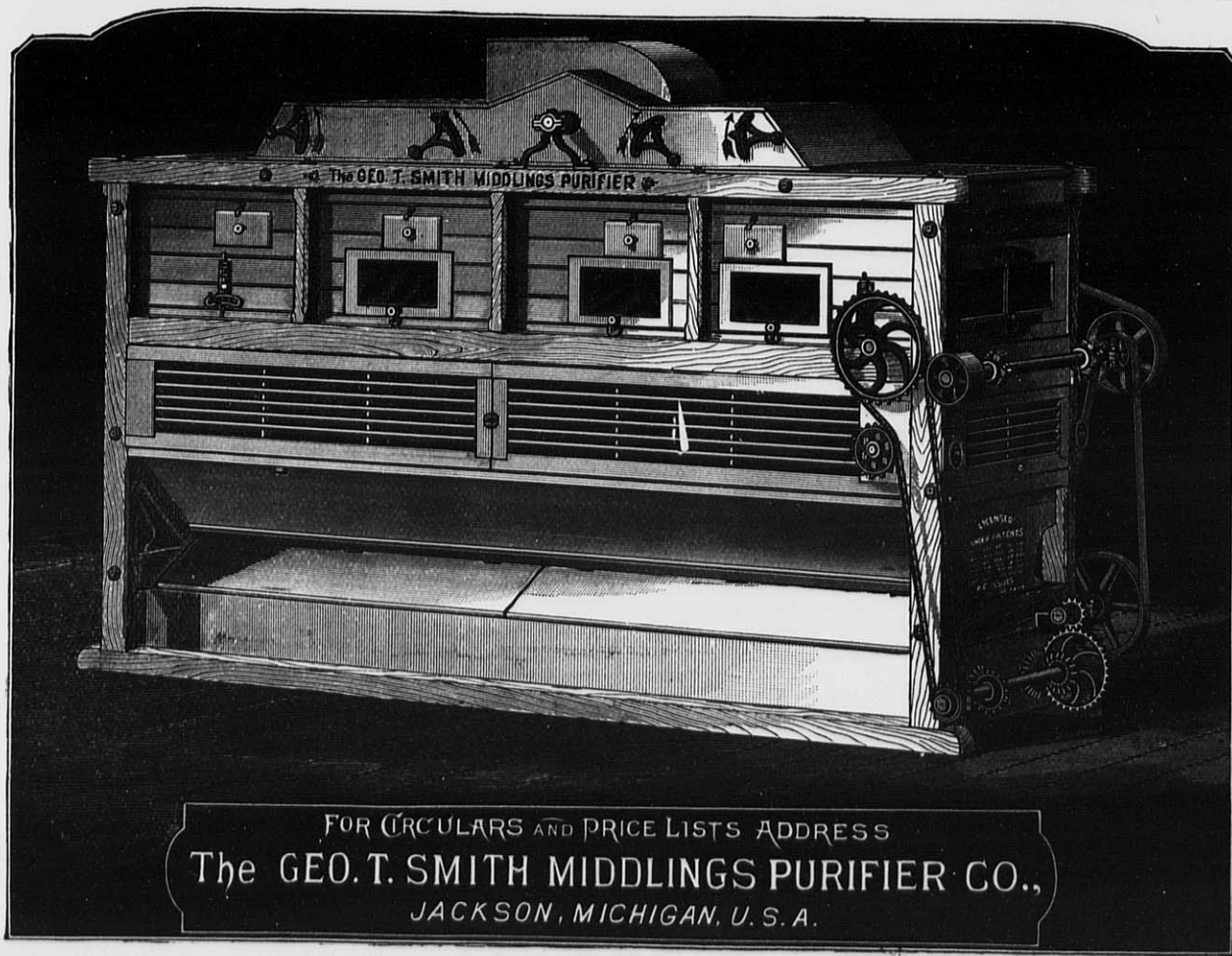
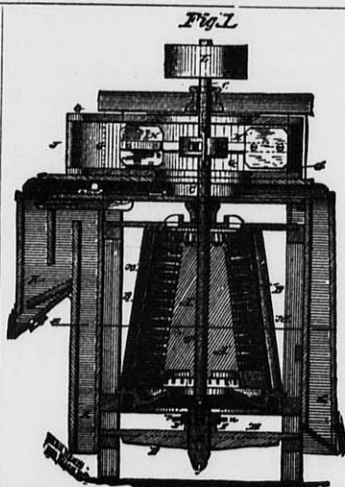
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### And Galt's Combined Smut and Brush Machine.

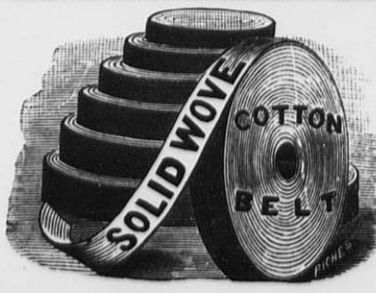
The Only Practical Cone-Shaped Machines in the Market, and for that Reason the Best. ADJUSTABLE WHILE IN MOTION.

NEARLY 1,000 OF THESE MACHINES IN USE in the United States and foreign countries, and so far as we know all that use them are pleased. Millers, millwrights, and milling experts claim the Cone Shape Solid Cylinder Brush is the true principle to properly clean grain. All machines sent on trial, the users to be the judges of the work. For price and terms apply to

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The GEO. T. SMITH MIDDINGS PURIFIER CO.,  
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## MILL SUPPLIES

Leather  
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## BELTING, BOLTING CLOTH,

Elevator Buckets, Bolts, Mill Irons, &c.

Prices Close and Quality the Best.

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Everything used in a Mill of every kind always on hand.

## A 6X12 ROLL.

We are making the neatest and most substantial 6x12 Two and Four Roller Mills, smooth and corrugated, ever put on the market. Millers wanting small rolls (as well as large), will find ours well made, neat and complete. Every pair has our Patent Automatic Feed. The price is low-down.

ADDRESS,

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Is Unequalled in  
Ease of Operation, Effective Duty, Close Regulation,  
In Quick Starting up to Speed,  
Uniformity of Speed and Economy of Fuel.

These are points of Importance to every Miller and Manufacturer who expects prompt, even, duty of an engine. Printed matter, cuts, and information promptly furnished on Application. Send for our 150 page Illustrated Catalogue.

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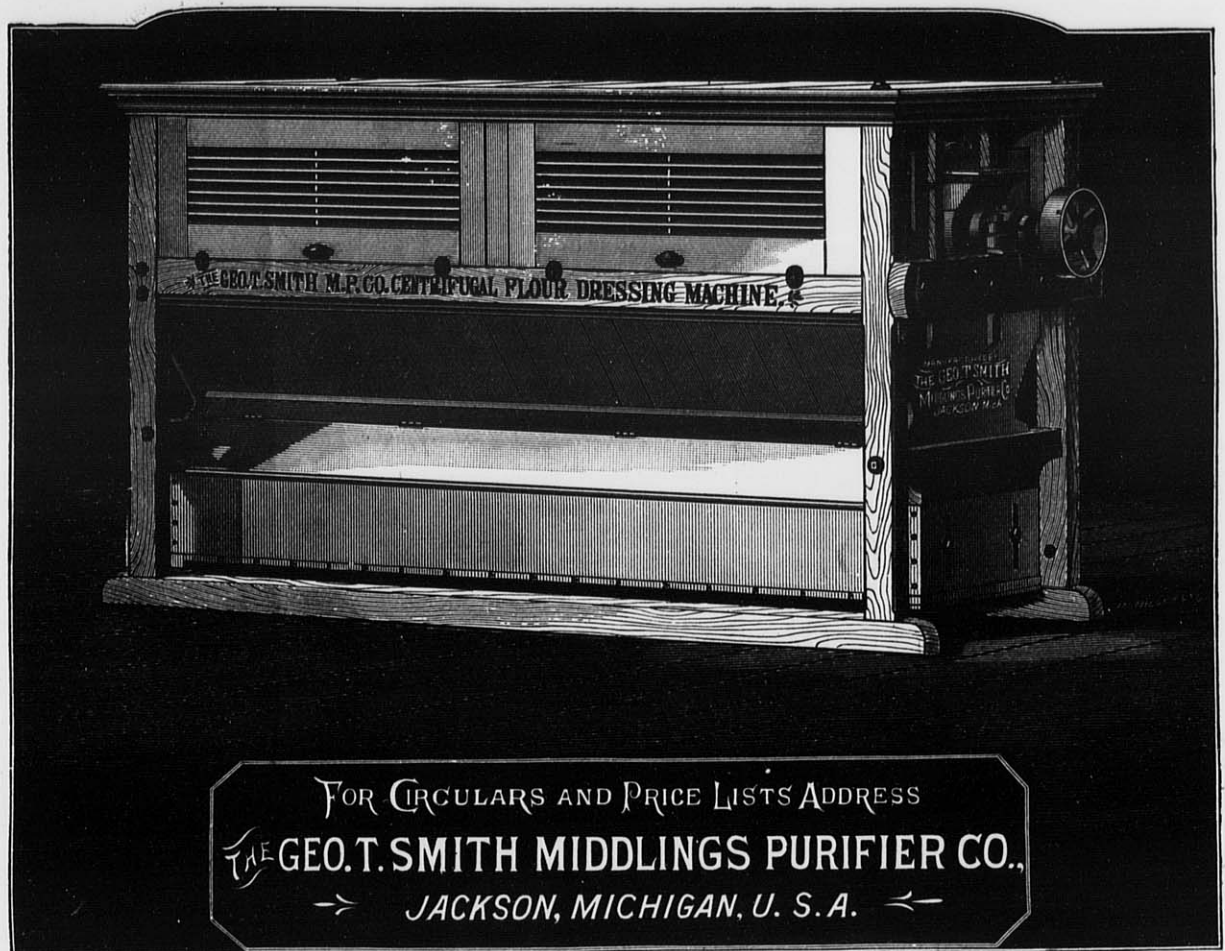
## NOTICE.

In the year 1880 we furnished a mill in the State of Michigan, with Twelve pairs of Steven's rolls. After running constantly night and day until Aug. 3, 1883, the mill was burned and the rolls were more or less seriously damaged. The rolls and frames were sent to us for repairs. Twelve pairs were re-ground and re-corrugated. The frames, which were of our earliest pattern, were put in as good order as possible, and new housings urnished. In this condition we returned the mills to the owners. Subsequently, we are credibly informed, the mills were sold to a Mill Furnishing House in Indiana, which is now offering these same mills as "new Stevens Double Roller Mills." This is a fraud upon us and the public.

If anyone wants a line of **SECOND-HAND** Steven's Roller Mills we can recommend the above lot consisting of six double mills. For **NEW MILLS** apply to us or our authorized agents.

**THE JOHN T. NOYE MFG. CO.,**  
Buffalo, N. Y.

Beware of Second-hand Stevens Roller Mills offered by one of our competitors. They were made in 1881 and have since passed through a fire.



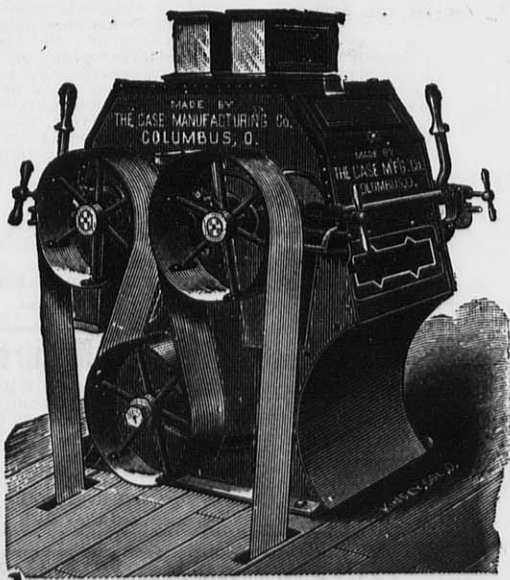
FOR CIRCULARS AND PRICE LISTS ADDRESS  
**THE GEO. T. SMITH MIDDINGS PURIFIER CO.,**  
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**WE  
HAVE**

## SOMETHING OF IMPORTANCE

**TO  
SAY.**

*VIZ:--- We make a larger line of Modern Mill Machinery under one roof than any Firm in the country. Our machines are all adapted to each other. We can furnish a line of them at less cost than others can afford. We have had a wide experience and are well informed as to Modern Milling, Separations, &c. Our machinery is as good as the world can produce. For those who want only a partial Roller system we have the best arrangement and at the least cost of anything yet introduced.*



**BISMARCK.**

*Millers who want to be benefited and don't want full Gradual Reduction, should not decide upon their plan until they confer with us.*

*We invite your correspondence.*

**It is Dustless and Noiseless!**

**It has THE BEST FEED in the World !**

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**THE CASE MANUF'G CO., Columbus, O.**

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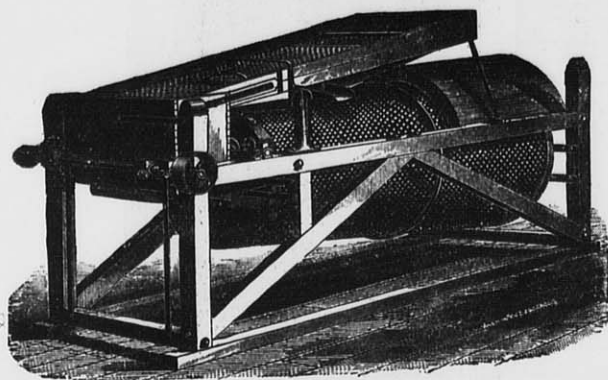
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THE BACK DRAFT CLEANING MECHANISM EXCLUSIVELY PATENTED TO U.S.A.  
Beware of Infringement.  
MILWAUKEE DUST COLLECTOR MANUFACTURING CO.  
SOLE MANUFACTURERS OF PRINZ PATENT DUST COLLECTOR.  
2500 MACHINES IN OPERATION.  
LICENSED UNDER ALL EXISTING PATENTS OF ANY VALUE.  
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PRINZ PATENTS CONTROLLED BY U.S.

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MILWAUKEE, WIS.



### GENERAL MILL FURNISHERS

MANUFACTURERS OF  
**Kurth's Improved Patent COCKLE SEPARATOR,**  
Built also in combination with Richardson's Dustless  
**Wheat Separators.**

Large Capacity combined with Good Quality of Work. Beardale's Patent  
**GRAIN CLEANERS,**  
Fully Guaranteed to give the Best of Satisfaction.  
Pott's Patent Automatic Feeder for Roller Mills, Purifiers, etc., very simple and cheap. Perforated Sheet Material at low prices. Send for Circulars and Catalogues.



## Alcott's Improved Turbine.

This Wheel is considered one of the most correct that has been devised, gives the highest results, and, with late improvements, is now the best, most practical, and efficient Partial Gate Wheel in existence.

For Economy, Strength, Simplicity, Durability, and Tightness of Gate, it has no equal.

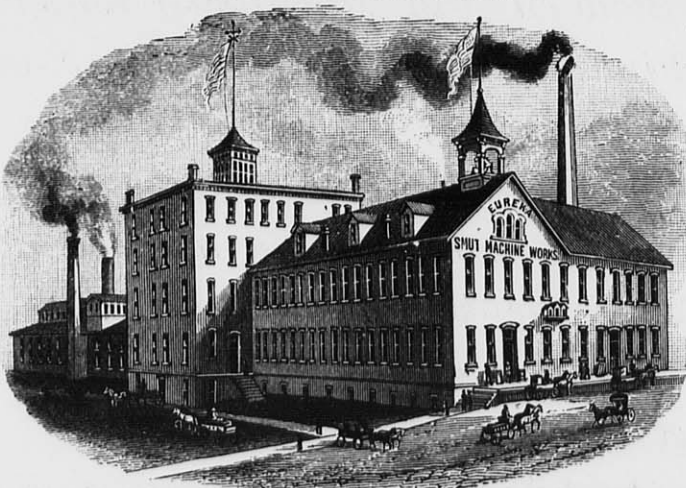
State your requirements, and send for Catalogue to

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MOUNT HOLLY, N. J.

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We furnish these cloths by the piece or made up to order in our acknowledged superior manner. Send for samples of cloth and sewing.



EUREKA GRAIN CLEANING MACHINERY  
More than 18,000 Machines  
in use in all parts of the World.

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45 LBS FLOUR.

60 LBS. WHEAT.

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Practical Mill Builders of both Buhrs and Rolls, or both combined. Building new and remodeling Buhr mills with all the latest improvements, including Buhr Dressing, new process Bolting, together with the latest improvements in wheat cleaning. GUARANTEEING RESULTS.

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**THAYER'S**  
**COMMON SENSE THREE REEL BOLT.**

Without Conveyers.

Runs with one-half the power of ordinary Bolts. Correspondence solicited.

[Please mention the UNITED STATES MILLER when you write to us.]

Also Manufacturers of

**THAYER'S PNEUMATIC MIDDINGS PURIFIER.**

Adapted to all systems of milling, has many advantages over all other Purifiers in making a complete separation of the fine from the coarse middlings by controllable air currents, purifying separately on the same machine, handling middlings without granulation, occupies less space, runs with less power, requires less attention, is made more durable, and is less liable to get out of repair than any other purifier made. For 1884 Catalogue, Prices, etc., address,

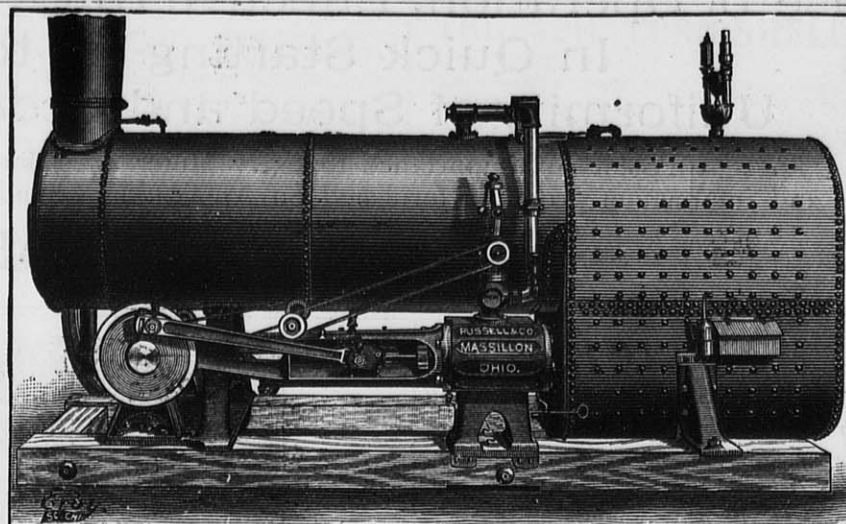
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**MITCHINER & LYNNE.**

Old Corn Exchange, LONDON, ENGLAND.

Are C. I. F. Buyers of the Above.



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I have had twenty-two years' experience in the manufacture and dressing of Mill Picks, and can and do make as fine Mill Picks as can be made by anybody anywhere. I use only the best imported Steel for the purpose. My work is known by millers throughout the country, and is pronounced to be first class by the very best judges.

We have hundreds of the most gratifying testimonials from nearly all the States. We solicit your orders and guarantee satisfaction. Address as above. [Please mention this paper when you write.]

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2 DAILY THROUGH TRAINS 2

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Sleeping Cars on all night Trains.

Double Berth 75 cents to \$1.00.

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From Oshkosh and Appleton to all Points North and Northwest via New London Junction.

The fishing resorts on the Northern extension of the Line offer unsurpassed inducements to sportsmen. Special excursion rates for parties. Guide Book entitled "Forests, Streams and Lakes of Northern Wisconsin and Michigan" forwarded to any address on application to the undersigned after March 1st, 1884.

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## Bolting Cloth!

Don't order your Cloth until you have conferred with us; it will pay you both in point of quality and price. We are prepared with special facilities for this work. Write us before you order. Address,

**CASE MFG. CO.,**

Office & Factory: Columbus, Ohio.

Fifth St., North of Waughten.

## WALKER BROS. & CO.,

FLOUR AND GRAIN

Commission Merchants

TRINITY SQUARE,

LONDON, E. C., - ENGLAND.

## WANTED

EVERY MILLER to know that THE FILER & STOWELL CO.'S

## CREAM CITY IRON WORKS

Milwaukee, - Wisconsin.

Have two new Machines for

## CORRUGATING ROLLERS!

Best in the Market.

Repairing and Recorrugating a Specialty.

## STEEL CAR PUSHER

Made entirely of STEEL. ONE MAN with it can easily move a loaded car. Will not slip on ice or grease.

Manufactured by  
**E. P. DWIGHT,**  
Dealer in Railroad Supplies, 407 Library St., Philadelphia, Pa.

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Embodies everything in Figures that is PRACTICAL, and ADAPTED to the wants of Farmers, Mechanics and Business Men; and by ingenious and original systems, makes the art of computation EASY and SIMPLE, even for a child. It gives the CORRECT answer to nearly 100,000 BUSINESS examples of almost every conceivable kind, and is worth its weight in gold to every person not thoroughly versed in the science of numbers. In selling GRAIN of any kind, it will tell how many bushels and pounds are in a load and how much it will come to without making a single calculation. In like manner it shows the value of Cattle, Hogs, Hay, Coal, Cotton, Wool, Butter, Eggs and all kinds of Merchandise. In computing INTEREST and wages it has no equal, either in easy methods or convenient tables. It shows at a glance, the accurate measurements of all kinds of Lumber, Logs, Cisterns, Tanks, Barrels, Granaries, Waggon beds, Corn cribs, Cordwood, Hay, Lands, and Carpenters', Plasterers' and Bricklayers' work, etc. It, however, not only tells results, but also TEACHES entirely NEW, SHORT and PRACTICAL RULES and Methods for RAPID commercial calculations, which will prove highly interesting to every student of this great and useful science. It is neatly printed on the tinted paper, elegantly bound in pocketbook form, and accompanied by a Silicate Slate, Memorandum, pocket for papers and PERPETUAL Calendar, showing the DAY OF THE WEEK for any DATE in the 17th, 18th, 19th and 20th centuries. It will be to every one's interest indeed, to examine this useful and convenient work before buying a new memorandum as it saves not only time and labor, but often dollars and cents as well, and withal costs no more than an ordinary diary in similar binding.

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No. 3, Full Leather, with slate, pocket, flap and mem. \$1.00. Sent POSTPAID on receipt of price.

Address, **UNITED STATES MILLER,**  
Milwaukee, Wis.

## Important Notice to Millers.

THE RICHMOND MILL WORKS, and RICHMOND MILL FURNISHING WORKS are wholly removed to Indianapolis, Ind., with all the former patterns, tools, and machinery, and those of the firm who formerly built up and established the reputation of this house; Therefore to save delay or miscarriage, all letters intended for this concern should be addressed with care to  
**NORDYKE & MARION CO.,**  
INDIANAPOLIS, IND.

## FINE WOOD PHOTO-ENGRAVING

SEND COPY FOR ESTIMATE. IT WILL PAY YOU 1702 CHESTNUT ST. PHILADELPHIA PA

## PARTNER WANTED

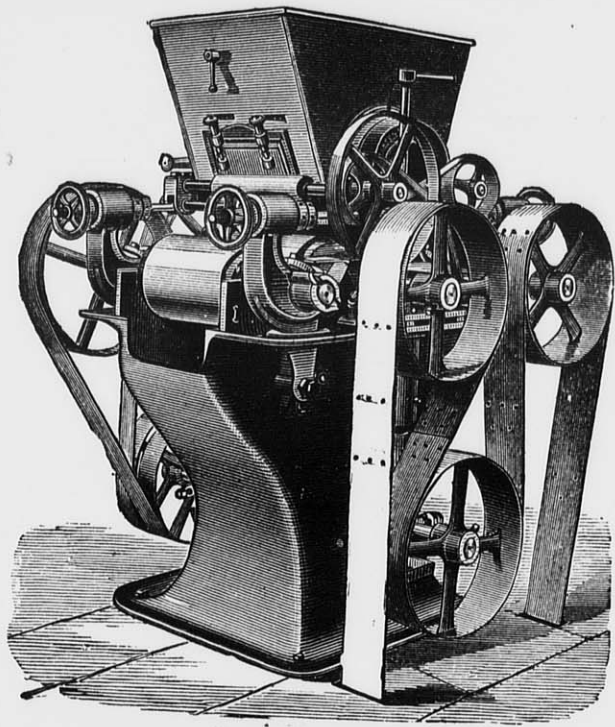
To put in the Roller system, in what is now a first-class 3-run Water power Custom and Merchant Mill. Building of stone 34x44 ft., three stories besides basement and attic. Best built mill in the state for its size; never failing Water power; delightfully located in a village near R. R. station, at outlet of lake 3 miles long 1 1/2 wide, with a river running through it. Can buy abundance of choice wheat at mill door, so as to be able to deliver flour in Milwaukee at 30 cents per barrel less than Milwaukee mills can produce it. Good run of Custom, and ready sale for all offal and feed at retail prices. To the right man a bargain will be offered. For further particulars address in sealed envelope, **MADISON H. BUCK,** Delafield, Waukesha Co., Wis. [May]



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## MILL BUILDERS AND FURNISHERS,



AND SOLE MANUFACTURERS OF

GRAY'S PATENT NOISELESS

## ROLLER MILLS

CORRUGATED AND SMOOTH CHILLED IRON ROLLS,

**Wegmann's Patent Porcelain Roller.**

We shall be Pleased to hear from Millers contemplating an improvement in their Mills, or Building new ones, and can furnish Estimates and Plans of our system of GRADUAL REDUCTION ROLLER MILLING. We have built and Changed over hundreds of Mills, in all parts of the Country, and using all classes of wheat, BOTH HARD AND SOFT, and can furnish references on application. The Largest and Best Mills of this Country are using our System and Roller Machines. Messrs. C. A. Pillsbury & Co., of Minneapolis, have over 400 PAIRS OF OUR ROLLS AND HAVE RECENTLY PLACED AN ORDER WITH US FOR ABOUT ONE HUNDRED AND TWENTY MORE. We have had a longer and larger experience in Roller Mill Building than any other manufacturers of this country. There is no EXPERIMENT ABOUT OUR SYSTEM and Rolls, so expensive to millers, and when the mills that we build or change over are ready to start, THEY DO SO AND WITH PERFECT SUCCESS, and there is no further changing, additions, stopping or expense. We manufactured and sold during the year 1881 over TWO THOUSAND FIVE HUNDRED pairs of rolls.

We can send competent men to consult with any millers who contemplate an improvement, and whom they can depend upon as being RELIABLE AND THOROUGHLY COMPETENT to advise them as to the number and kind of machines required, best method of placing them and the change required, if any, in the bolting and purifying system. WE DO NOT URGE A GENERAL CLEANING OUT OF ALL OLD MACHINERY unless we clearly see such would be the ONLY COURSE TO PURSUE to make a SATISFACTORY AND RELIABLE MILL. In nearly all instances we can use all the Old Machinery, leaving it in its original position, or with as slight a change as possible. We aim to make the Improvement so that it will be a Profitable one to the Miller, and at the least expense possible.

Our System is THOROUGH and RELIABLE, and our Roller Machine Perfected by Long Experience, and the Miller takes no chances in using them, as HE DOES with the New Fangled Notions of Drive and Adjustment on many other machines now TRYING TO FOLLOW OUR IMPROVEMENTS and still avoid our Patents, in BOTH of which THEY FAIL. We were the first to advocate the Entire Belt Drive, and were opposed by every other maker, who claimed it was not positive, etc., etc., and now that our Belt Drive is an ACKNOWLEDGED SUCCESS, and will SUPERCEDE EVERY OTHER STYLE, these advocates of Gear Drive have suddenly learned that Belts are the Thing. The same may be said of our Spreading Device, Feed Gates, and Adjustable Swing Boxes. Other Makers are now copying these. ALL these Features, including BELT DRIVE with ADJUSTABLE COUNTERSHAFT and TIGHTENER, the SPREADING DEVICE, FEED GATES, Adjustable Swing Boxes and Leveling Devices, Self-Oiling Boxes, etc., are secured to us by several Strong Patents, and we CAUTION MILLERS in regard to these Infringements of Our Patents and Rights, for we shall look to THEM for Redress. The matter is in the hands of our Attorneys, who will soon take VIGOROUS ACTION against the Makers and USERS OF MACHINES infringing Our Patents.

Several machines are already on the market which Broadly Infringe, and we are informed that other makers are now changing their Old Style Machines, and adopting in a large measure Our Improvements. BEWARE OF THEM.

Send for New Illustrated Catalogue, Giving full Information to

# EDW. P. ALLIS & CO.,

MILWAUKEE, WIS.

Branch Office 318 Pine Street, Benson Block, SAN FRANCISCO, CAL.

J. R. CROSS, Manager.

[Please mention the UNITED STATES MILLER when you write to us.]



## Southern Exposition at Louisville, Ky., 1883.

The Board of Directors has confirmed the following report of the Jurors on Awards for the Southern Exposition of 1883, and decreed an award therewith as follows:

## REPORT ON AWARDS.

PRODUCT—Roller Mills (Gilbert & Livingston). EXHIBITOR—STOUT, MILLS and TEMPLE, Dayton, Ohio.

AWARD—A Medal for the BEST ROLLER MILLS.

The Award as made above is in the hands of the engraver, and will be delivered soon as completed.

J. M. WRIGHT,

General Manager.

Louisville, Nov. 26, 1883.

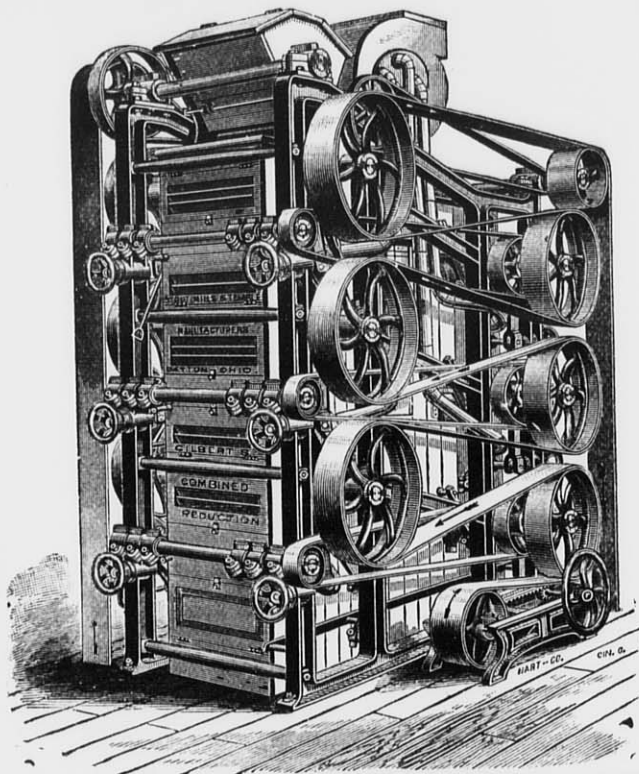
The above is an exact copy of notification of Award sent us. Cuts of Roller Mills referred to.



## The Gilbert Combination

The CHAMPIONS!

Acknowledged by ALL USERS and DISINTERESTED JUDGES to be the Best Combination Mill in the World.



## Reduction Roller Mill.

It is used in a Gradual Reduction Mill to make the breaks, and to do the scalping between same, and aspirates the stock after EACH separation. The products from the Mill are Bran for the Duster, and Middlings for the Purifier.

## The Livingston Belted Roller Mill

The strongest, simplest, yet most completely adjusted Four-Roller Mill in the market. It can be used for reducing all kinds of grain.

For descriptive circular and price list, call on or address,

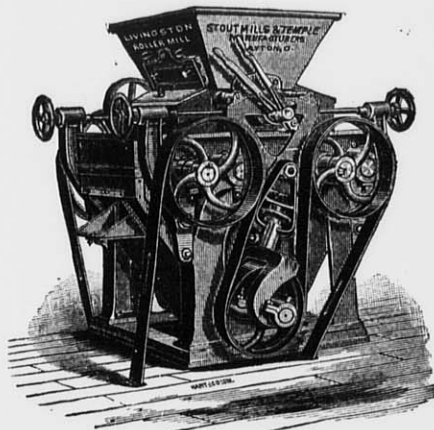
STOUT, MILLS & TEMPLE,

Sole Manufacturers,

Dayton, Ohio.

CHAS. RAKES, Lockport, N. Y., Sole Agent for New York, Pennsylvania, Virginia, W. Virginia, Maryland, New Jersey and New England States.

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## NORDYKE &amp; MARMON CO., INDIANAPOLIS, IND.

BUILDERS FROM THE RAW MATERIAL OF

## ROLLER MILLS, CENTRIFUGAL REELS,

Flour Bolts, Scalping Reels, Aspirators, Millstones, Portable Mills,

AND KEEP THE LARGEST STOCK OF

## All Kinds of Mill Supplies in the United States.

## 500 BARREL MILL IN MISSOURI.

READ WHAT AN OLD MILLER, WHO HAS THIRTY-FOUR PAIRS OF THESE ROLLS IN CONSTANT USE, SAYS:

MESSRS. NORDYKE & MARMON CO., INDIANAPOLIS, IND.

Gentlemen:—In regard to the workings of our new mill erected by you, will say it is working fully up to and beyond our expectations. Our average work is fully 33 per cent. over your guarantee. Since starting our mill last July we have had no complaint of our flour from any market where sold. It gives universal satisfaction, and we have it scattered on the trade from Chicago to Galveston, Texas. Our yields are all that are attainable. We have tested it on both Spring and Winter wheats with satisfactory results on both varieties. Since the mill was turned over to us we have not changed a spout or a foot of cloth, nor have we found it required to make any changes. We have run as long as six days and nights without shutting steam off the engine, not having a "choke" or a belt to come off. The mill is entirely satisfactory to us, and for a fine job of workmanship, milling skill and perfection of system, we doubt if it is surpassed in the United States to-day. It is certainly a grand monument to the ability and skill of Col. C. A. Winn, your Milling Engineer and Designer. You may point to this mill with pride and say to competitors, "You may try to equal, but you will never beat it." Wishing you the success that honorable dealing deserves, I am,

Yours, etc.,

R. H. FAUCETT, Prest.

## 500 BARREL MILL IN ILLINOIS.

MESSRS. NORDYKE & MARMON CO., INDIANAPOLIS, IND.

Gents:—We started up our mill in June last year, and it gives us pleasure to say that your Roller Mills are doing splendid work and give us no trouble. Your milling program required no changes, and concerning yields, we get all the flour from the offals, and we sell our best grades in the principal markets of the United States at the highest prices offered for any flour. All the machinery made by you is first-class, and we would not know where to purchase as good.

Yours respectfully,

DAVID SUPPIGER & CO.

## 125 BARREL MILL IN INDIANA.

NORDYKE & MARMON CO., INDIANAPOLIS, IND.

Gentlemen:—The 125 barrel All Roller Mill you built us has been running all summer, and does its work perfectly. Before contracting with you for this machinery we visited many Roller Mills throughout the West and Northwest, built by the different leading Mill-furnishers, and from all we could see, those built by you seemed to be giving the best satisfaction, and this is why we bought our machinery of you. Our mill comes fully up to your guarantees, and the capacity runs over your guarantee. The bran and offal is practically free from flour, and our patent and bakers' flour compares favorably with any we have seen elsewhere. I don't think anyone can beat us. Your Roller Machines are the best we have seen; they run cool, and the interior does not sweat, and cause doughing of the flour. Judging from our success, we would recommend other millers to place their orders with you.

Yours truly,

J. T. FORD

Letters on file in our office from a large number of small Roller Millres giving as favorable reports as above. A portion will be published as occasion demands.

## SPECIAL MILLING DEPARTMENT!

Mill Builders and Contractors—Guarantee Results.

Motive Power and Entire Equipment of a Modern Mill Furnished under one Contract.

